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### Australasian Medical Congress (British Medical Association),

Melbourne, 1923.

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### An Address.<sup>1</sup>

By G. A. SYME, M.S., F.R.C.S. (England),  
President of the Australasian Medical Congress  
(British Medical Association).

It is now my duty, an obligation imposed by the constitution of the Congress, to address to you some remarks on more or less professional topics. On an occasion like this many minds will naturally revert to the last meeting of Congress held in Melbourne and will recall the masterly presentation then given of the collective *mens medica* by my distinguished predecessor in this chair, Professor Sir Harry Allen.

It may be remembered that in his eloquent and erudite address, he observed that "in general terms the medical profession has for its special function the culture of human life." Taking this sentence

as the keynote of what follows it may be convenient at the outset to point out that the subject matter falls into two groups, firstly, matters which are purely professional, and secondly, some which are rather socio-political, but in which the profession claims to have a special interest, such as eugenics, euthanasia and the like; opinions expressed on this second group are not to be regarded as authoritative but merely suggestive.

Probably never was a time in history when the culture of human life was more necessary or more important than now, in the period following the Great War.

It has long been argued on the platform and in the press that one of Australasia's greatest needs is more population. The war has accentuated this need, owing to the loss by actual death or by permanent disablement of so many of the most virile and most productive in the community.

In the immigration schemes that have been instituted to provide more population, it has been recognized that undesirable people must not be admitted

<sup>1</sup> Being the President's Inaugural Address at the first session of the Australasian Medical Congress (British Medical Association) delivered on November 12, 1923.

to the Commonwealth. It is not equally appreciated by those whose slogan seems to be "multiply the people to fructify and defend the country," that the natural increase of population also must be safeguarded; that it should be qualitative and not merely quantitative. To add to the population those who cannot or will not work, is positively harmful. Incapacity for work is largely due to impaired physical conditions, inherited or acquired. If production is to be increased, in order to restore the economic loss occasioned by the war, it is essential that the whole population must be in the best possible condition of health and so able to work with the greatest efficiency. In short, the culture of human life must be promoted in every possible way.

Everyone is impressed by the dramatic wastage of war, but the constant wastage of disease, though far greater, is accepted with fatalistic resignation, as if it were inevitable. But it is not inevitable; a great deal of disease could and should be prevented. Why, then, is it not prevented? Who is to blame? A section of the lay press, especially in the State of Victoria, seems to imply that the medical profession is chiefly in fault. The following quotation from a leading article in one of our newspapers indicates its attitude:

Practically the whole of our health service is in the hands of the medical profession, that is constituted as a monopoly of private traders. The private doctor is not concerned with health at all. He is only concerned with ill-health. His services must be bought for high fees. He is not called in until illness is manifest. His whole business then consists of curing the illness or alleviating the suffering and collecting his fee. Causes that may infect others, sources from which disease may spread throughout the community, conditions that must inevitably mean ill-health—these are altogether outside the scope of his profession. National health can never be improved by relying upon a profession of curers.

Such a statement, while containing some truth, is obviously unfair. The medical profession all the world over has ever been in the forefront of all movements for the prevention of disease, most of which have been originated and inspired by its members. It is true that the ordinary general practitioner in the past has been more directly concerned with the treatment of actual disease than with its prevention, but that is because disease has always been present and required treatment and curative work has necessarily taken up the largest proportion of the time and energy of the ordinary practitioner. It is for this work that he had to be trained. In all occupations specialization has been necessary, because no one individual can be master of every department. The prevention of disease has been made a special department of medicine, in charge of members of the profession who give their whole time to their duties, as officials of the public service. The field of specialization in this direction is ever widening and more and more medical practitioners are enlisting in community service, either as whole-time or part-time public officers. Every conscientious practitioner does help in the prevention of disease as far as opportunity offers. It is, however, true that in the past general practitioners might have had more training in the preventive aspects of medicine, might have cooperated more satisfactorily with the public

health officials and might have adopted a more sympathetic attitude to their work.

The General Medical Council of Great Britain decided recently "that throughout the whole period of study the attention of the student should be directed to the importance of the preventive aspect of medicine" and, as the Council regulates medical education in all the British Dominions, we may be confident that all future practitioners will be properly equipped to fulfil all their obligations in regard to prevention of disease. That the profession is deeply impressed by the great importance of prevention is indicated by the decision of the Executive of this Congress that "in all the work of the Congress particular attention shall be given to the preventive aspect, including medical research."

In July, 1919, the Federal Committee of the British Medical Association in Australia resolved:

That a material advance will have been made in the practice of public health when the practising profession, who come first into relationship with cases of illness and who can earliest take adequate measures, have become incorporated as an integral part of the machinery of public health.

In February, 1920, the Committee further resolved:

That it is highly desirable that a Commonwealth Department of Public Health be created.

These resolutions were submitted to the Prime Minister and the Commonwealth Department of Public Health was subsequently established. The profession hoped that this department, in conjunction with the State Departments of Health, would have formulated some scheme for the practical co-operation of the general practitioner in preventive medicine. The Federal Committee has indicated the views of the profession on the subject and is engaged in preparing suggestions for the necessary organization. It should be the function of departmental experts to devise the machinery. The profession will consider most sympathetically any scheme that is proposed.

No. Ladies and Gentlemen, it is not the medical profession that is chiefly to blame because disease is not prevented. It is the public, individually and collectively, that is mostly at fault. Members of the profession are ceaselessly striving to educate the public as to the supreme importance of health and as to the proper measures necessary for maintaining good and avoiding ill-health. The members of the public cannot be persuaded for their own good to adopt these measures, even when most obvious.

#### Venereal Diseases.

For instance a very prevalent disease in every community is that called venereal. Exactly how prevalent it is difficult to say. In Australia it has been estimated that 30% of the population is affected by it and that the economic loss it occasions is £50,000,000 *per annum*. The scientific researches of medical practitioners have discovered the exact organisms that cause the diseases, the methods of infection, special tests for their presence in individuals and specific remedies for their cure. The profession has made its discoveries public and, largely owing to its representations, parliaments in Australia and elsewhere have enacted laws dealing with the subject.

The disease ravages the community just the same, causing infinite misery and suffering to thousands of innocent people, including children. Why? Because individual members of the public will not make use of the knowledge given them, will not obey the law, will not exercise self-denial and self-control and refrain from certain practices. Almost from time immemorial these practices have been denounced by ethical and religious authorities as immoral and sinful. Yet in spite of Church, Law and Medicine, such is human nature, that these practices continue and as human nature changes very little, it is not probable that they will ever cease. In endeavouring to prevent venereal disease, however, purity, chastity and continence must always be the ideal at which all must aim.

#### Typhoid Fever.

In the prevention of typhoid fever much has been accomplished because it has been more a matter for corporate than for individual action. For example, in Melbourne in 1878 typhoid fever caused three hundred and seven deaths. In 1922 only twelve died and in the last nineteen and a quarter years only 8.5 cases occurred per thousand of the population.

In 1885 a Royal Commission investigated and reported on the sanitary condition of Melbourne. It recommended the establishment of a Metropolitan Board of Works to institute a system of sewerage and other improvements. Parliament carried out its recommendations; the results indicated followed.

While both the incidence and death rate of typhoid fever have fallen so markedly in the metropolis, the disease still occurs with excessive frequency in country and extra-urban districts. The incidence of the disease per thousand inhabitants for some Victorian towns in the last nineteen years was: Bendigo 56, Mildura 83, Swan Hill 193, Murchison 45, Echuca 74, Beechworth 92, Wangaratta 73, Mansfield 64. In March of this year a severe outbreak took place at Mordialloc, a seaside resort near Melbourne, but unsewered. Water supply and sewage schemes on a large scale may not be practicable in country districts, but that is no reason why nothing should be done. Drainage should be diverted from rivers and discharge of filth into streams stopped. The methods of water purification and sewerage treatment adopted so successfully in the armies during the war, show what can be done and what is the effect of such measures in reducing typhoid fever. In the South African War typhoid fever caused ten thousand deaths. In the Great War only two hundred and sixty-six died from this disease. The measures used in the war could and should be adapted to civil requirements. Another factor in reducing both the incidence and mortality of typhoid fever in the war was compulsory protective inoculation. This valuable method should be employed in peace as in war, especially in country and extra-urban districts.

Propaganda work is necessary to arouse interest in disease prevention in rural districts, where the need of communal effort seems less appreciated than in large centres. The proposal of the Director-General of Health of the Commonwealth to establish

health services in selected areas should be adopted. The service would be under the administrative control of a skilled expert, who would secure the cooperation of the general practitioners of the district, the local health authorities and sanitary engineers. They should all be apostles of hygiene and go forth with the zeal of the old Crusaders.

#### Diphtheria.

While the case mortality of diphtheria has been reduced by the employment of antitoxin in treatment, the incidence is higher than ever, so that the actual death rate has greatly increased. In 1911 the deaths in Australia were 362, in 1922 they were 522. One of the difficulties in the prevention of diphtheria is the problem of the "carrier." The identification of "carriers" has been established in diphtheria, cerebro-spinal meningitis and typhoid fever. They are probably responsible for the spread of infantile paralysis, *encephalitis lethargica*, influenza, measles and scarlet fever.

The Commonwealth Department of Health has instituted an anti-diphtheria campaign at Bendigo. The results will be submitted to this Congress, in its Public Health Section. It is understood that they are very gratifying. In April, 1921, a similar campaign was undertaken in Toowong with the following result. Five hundred and thirty children were examined; ten carriers were discovered and isolated. From January 1 to April 30, 1921 (prior to the campaign) fifty-eight cases of diphtheria occurred; from May 1, 1921, to July 31, 1922, only sixteen cases.

To the Public Health Section will also be communicated the results of an investigation into the "Schick test" and as to the possibilities of immunizing, by protective inoculation, children shown by the test to be susceptible.

This method has been in use in America for some years and Dr. W. H. Park, of New York, states that three injections of one cubic centimetre each of a suitable toxin-antitoxin mixture, spaced one or two weeks apart, will cause about 85% of susceptible children or older persons to cease yielding a Schick reaction and will produce considerable, if not absolute, protection against diphtheria. The duration of the immunity in at least 90% of the children is for more than six years and probably for the remainder of life. No serious effects have ever resulted from the injections, given to tens of thousands of New York children in the last seven years.

When the Health Officer for Colac asked the Health Commission in Victoria a short time ago to organize a campaign there for "swabbing" throats of "suspects" and eliminating "carriers," the Commission refused and said such a scheme was impracticable, chiefly because of its cost. The prevention of diphtheria is admittedly a difficult problem and its solution means considerable expenditure. But it ought to be the business of health authorities, like the Commission, to make governments and people appreciate that health and safety cannot be secured without heavy expenditure. They must also be taught that money so expended will be well spent and truly reproductive, by promoting efficiency and reducing economic loss.

## Research into the Causes of Disease.

Australia has been saved considerable expenditure by the generous assistance of the International Health Board of the Rockefeller Foundation. We are under a deep obligation to the Board and cannot too heartily express our appreciation of the service it has rendered. The trained experts it sent us have conducted most valuable investigations with very practical results. But why should a prosperous country like Australia have to be indebted to America for funds for work of this kind? It is a great reproach that more of our wealthy Australians do not contribute funds for research. The Executive of this Congress has decided, as previously mentioned, that in "all its work particular attention shall be given to the preventive aspect, including medical research." The necessity for research and for providing facilities for carrying it on cannot be sufficiently emphasized. Melbourne is fortunate in possessing the Walter and Eliza Hall Institute, by means of which excellent work has been done. In Sydney the Royal North Shore Hospital is to be provided with a research laboratory, partly by Government and partly by private beneficence. The Commonwealth Department of Health has established laboratories at Bendigo and Townsville. Similar institutions are needed all over Australia and every large metropolitan hospital at least ought to have a research laboratory with a staff of trained scientific experts. As Sir Almroth Wright observed recently, most of the research work in medicine can only be done in connexion with hospitals which provide problems and material. Scholarships should be provided for training students in research. Such students as are found suitable should then be given permanent posts. Those engaged in medical research are constantly tempted to desert and engage in private practice, owing to its greater monetary rewards. To prevent this they must be given adequate salaries and proper status.

Our ignorance regarding the real causes of disease is immense and until the mode of origin is discovered, little can be done in the way of prevention. One of the commonest diseases today is appendicitis. Like a bolt from the blue it suddenly attacks an apparently healthy individual and no one seems to be immune. Every practitioner sees innumerable cases, but no one has discovered how any case originated; the bacteriologist has not even found a specific organism that can be held responsible. Even when the specific organism is known, as in pneumonia, which attacks as suddenly and mysteriously, the profession is still ignorant of the other factors essential to its causation and unable to advise measures of prevention.

Another class of disease concerning the origin of which little is really known, is that characterized by the formation of calculi, whether in the urinary, biliary, salivary or intestinal tracts. Pathologists speak about altered metabolism, but the phrase is often only a cloak for ignorance, as it is when applied to the cause of gout and other constitutional diseases. In diabetes again, metabolism is deranged and much valuable research has been carried out to elucidate its nature and provide a remedy. The

highest honour is due to Banting and his associates at the Toronto school, for their magnificent work in isolating and preparing "Insulin" and demonstrating its value in treatment. Their work is a splendid example of the practical value of scientific research and also of the necessity of research laboratories being connected with hospitals. But notwithstanding all that has been done in showing that diabetes is dependent on changes in the islets of Langerhans in the pancreas, it only takes us a step further back; we are still ignorant as to the causes of these changes and as to any means of prevention.

A more profound mystery is the cause of tumours, whether innocent or malignant. They occur not only in man, but in animals and the vegetable world. Possibly investigations in comparative pathology, a somewhat neglected field, may help to enlighten the darkness.

Until more is known as to the mode of origin of such conditions, prevention of their occurrence is almost impossible. All that can be done is to prevent their baleful effects. In this connexion it must be borne in mind that much so-called merely curative procedure is also preventive. When a surgeon removes calculi, tumours or an inflamed appendix, he does so largely to anticipate evil results. Done in an early stage the operation itself is perfectly safe, while by doing it, dangerous and often fatal complications or sequelæ are prevented. At the same time the patient is relieved of the actual symptoms present, especially pain. To the patient pain is the all important evil for which he seeks relief; to the profession it is a valuable sign of warning—a blessing in disguise. If appendicitis, for instance, were painless, its mortality would be terrible.

One reason why cancer often becomes so firmly established as to be practically incurable is that, except occasionally in its last stages, it is generally painless. The public unfortunately thinks it ought to be very painful and because there is no pain, does not seek advice until too late. Often also when it attacks internal organs, it produces very few symptoms until well advanced. Cancer of the lip and face is said to be less malignant than in other parts, but is it not rather that there it is visible and recognized earlier? As to treatment, early and radical operation still holds out most hope, combined with radio-therapy before and after operation. The essential is early diagnosis.

It cannot be too strongly impressed on the public and also on general practitioners that every abnormality in the shape of lumps and sores, especially lumps in the breast and sores on the lips, tongue and mouths should receive prompt attention. All women should frequently examine their breasts for lumps and should also know that bleeding after the menopause, indeed all uterine hæmorrhage, demands investigation. So-called indigestion in elderly people coming on suddenly and especially if accompanied by loss of weight is always suggestive of cancer of the alimentary canal, just as piles appearing late in life, or what is thought to be piles, often indicates rectal cancer and always requires attention.

At a meeting of the Royal Society of Medicine in London in March last the urgent need for public

education on the subject of cancer was discussed and it was resolved:

That it is desirable that the public should be given more information as to the early signs of cancer and the prospects of cure by immediate treatment.

As a result a body was constituted called the British Empire Cancer Campaign which is appealing for monetary support from the whole Empire. The British Red Cross Society has placed its organization at the disposal of the Council of the Campaign, the object of which is to coordinate and support research in cancer throughout the Empire.

In America a society has existed since 1913 for the control of cancer. Its objects are to disseminate knowledge about cancer, investigate conditions under which cancer is found, and compile statistics. Information suitable to public understanding is given by means of pamphlets, posters, films and lectures. A similar publicity campaign should be instituted in Australasia and strong financial support given to the British Empire Campaign.

#### Pure Air and Sunlight.

As a result of want of definite knowledge as to the exact mode of causation of so many diseases it is difficult for the profession at present to give much help in their direct prevention. We have to rely on general principles for promoting good health. These principles are few and simple. They can almost be summed up in one word—purity; pure air, pure water, pure food and pure surroundings. The dweller in a modern city generally gets fairly pure water supplied by some corporate body and can always make the water safe by boiling and filtering. Existing laws against adulteration ought to insure pure food, while the systems of sewerage and scavenging in use should provide fairly pure surroundings, provided the householder is cleanly. But he does not get pure air. The atmosphere of large cities is impregnated with smoke and dust which is often germ-laden. The modern practice of living in flats and tenements is objectionable because the tenants get insufficient fresh air and sunlight. The Medical Research Council made an inquiry recently in the London County Council schools as to the relative capacities of children from independent homes and those from flats and tenements. It was found that the former were 33.3% better.

It has long been known that sunlight has a powerful effect in rendering pathogenic organisms inert. More recent researches show that it also has a most beneficial effect on nutrition. Absorbed into the organism it hastens intra-cellular processes of oxidation and reduction and favourably modifies metabolism. Investigations carried out by the Lister Institute show that absence of sunlight or more particularly its ultra-violet rays is a factor in the production of rickets. These rays enable the body to deal economically with certain specific food constituents or vitamins whose absence from the food is one factor in causing rickets.

The principle of municipal taxation on unimproved land values, in force in many residential suburbs, seems objectionable from a health point of

view, leading to restriction of free spaces round dwellings and diminishing the amount of sunlight and pure air. It also lessens the opportunities for gardening, a most healthful recreation.

#### Infantile Mortality.

One of the best means of increasing an effective population is to reduce infantile disease and mortality. In Australia in 1920 the deaths of children under one year of age numbered 7,251 and from one to five years, 2,394—which is far too many. In New Zealand infantile mortality has been much reduced and is now the lowest in the world. Much of the improvement must be credited to the Plunket System, though other factors contributed. It may be noted that the Plunket System was devised by Dr. Truby King, a member of our profession and of this Congress, who has done very much to make the system a success. Its main features are to encourage breast-feeding of infants and by the service of specially trained nurses to teach mothers how to feed their children properly and how to attend to them.

It is to be hoped that some scheme of similar character will be put into effective and universal operation in all the States of Australia. It need not be identical in all respects, but might be modified to suit peculiarities of climate and situation.

It is regrettable that in this work for infant welfare there is so much overlapping, so many societies aiming at the same object in different ways. The Health Department of the Commonwealth might perhaps try to coordinate these various agencies in some national scheme which would also include pre-maternity care of prospective mothers and obstetric and post-maternity care also. Some of the money distributed by the Commonwealth Government as maternity bonus might be much more effectively used in fostering methods of the kind indicated.

#### Maternal Morbidity and Mortality.

The morbidity and mortality of child-birth are still far too high. As one means of lowering them some modern obstetricians seem to have been fascinated by the glamour of operating. One authority reported, apparently with pride, that out of 1,113 deliveries he had 920 versions, 80 Caesarean sections and 39 forceps cases. While some regard such practice as meddling midwifery and a contradiction in terms of the function of the obstetrician, "one who stands by," those who advocate such measures, claim that they are truly preventive in nature. It is to be feared that the subject of practical obstetrics is not now a sufficiently important part of the medical curriculum and, apart from its operative side, does not appeal to the student as it should. Dr. Barrington, of Sydney, has drawn forcible attention to the urgent need for more practical instruction in obstetrics and Professor Watson in his Inaugural Lecture at Edinburgh recently, also urged the necessity of more thorough and intensive training in this subject. Sir George Newman in his recent "Memorandum on Medical Education" outlined a scheme of instruction which includes all that Drs. Barrington and Watson demand, with the addition of clinical work in female venereal wards. "Mid-

wifery," he said, "should be taught at the bedside just as medicine and surgery are." In all obstetric teaching the preventive aspect must be emphasized. To insure the safe delivery of a living child and that the mother shall not suffer any preventible damage at the time or later, expectant mothers must be convinced of the necessity of consulting their medical advisers at an early stage of their pregnancy, at intervals during it and also after confinement.

#### Mental Deficiency.

In all endeavours to increase population it must be remembered, as stated at the outset, that what is essential is efficiency and not mere increase of numbers. To multiply the unfit is a national calamity. Unfortunately the unfit breed much more rapidly than the fit. Dr. Barr, physician to the Pennsylvania Training School for Feeble-minded, has stated that mental defectives reproduce their kind from two to six times more rapidly than normal people.

In this connexion the investigations and views of Professor Berry, made public in his Stewart Lectures, demand serious consideration and action. As he pointed out an urgent need in Australia is the establishment of child-study clinics, for the scientific investigation of children and the segregation and special treatment of those found to be defective.

Like begets like. "Thou didst prevent me; I had peopled else this Isle with Calibans." The children of defectives are mostly themselves defective. The well-known case of the Kallikak family illustrates how heredity operates. A young soldier of good stock had a son by a feeble-minded girl, from whom have descended in a direct line 480 individuals, of whom only forty-six are known to have been normal; of the rest some are unknown, the others turned out to be feeble-minded, alcoholic, epileptics and criminals; the women were grossly immoral, mostly prostitutes. Later the soldier married a woman of good family who bore several children and all the descendants turned out well, many being distinguished. The two families lived in the same environment. The case of the Jukes family is perhaps better known. Two sons of a mentally defective man married degenerate sisters. In the year 1915 their descendants numbered 282 individuals, scattered widely over the country. They all showed every grade of viciousness, pauperism, criminality, idiocy and insanity and were estimated to have cost the State two and a half million dollars.

One method of preventing the multiplication of defectives is the sterilization by surgical means (vasectomy in the male and tubectomy in the female) of those who are obviously unfit to produce normal offspring. Such a procedure is vigorously opposed, chiefly on sentimental grounds or because it is regarded as undue interference with the liberty of the subject. It seems, however, on biological evidence one of the most scientific and rational methods of preventing some of the economic loss and social disaster produced by the rapid multiplication of the unfit. Luther Burbank who has done such wonderful work in creating new varieties in the vegetable world, stated recently that: "Nothing seems more certain than that such civilization as we have, poor as it is, will be destroyed unless means

can be taken to prevent the unfit from multiplying so rapidly that they swamp and overwhelm the fit." The Dean of St. Paul's also has drawn forcible attention to the dangers that threaten us from this source. He, like Burbank, believes that the future of civilization is at stake, if measures are not taken to counteract the evil.

It is not claimed that sterilization of the unfit would abolish mental deficiency, because many mental defectives are not the direct result of hereditary factors. Neither is it suggested that it is the only measure required. Segregation and restraint with proper care and training are necessary, which may improve but can never cure the unfortunate condition. No training can restore the missing brain cells. Further, the care must be for life. It is fatal to train defective children to the age of eighteen or twenty-one and then let them loose on society.

Neither is it recommended that surgical sterilization should be enforced by law, except perhaps in the case of those moral defectives who are convicted of sexual offences, on whom not vasectomy but orchectomy should be performed. In several States of America laws have been enacted for the sterilization of "idiots, imbeciles, rapists and confirmed criminals." In some States these laws have been subsequently repealed; in others, it is stated, they are a dead letter. The time is not ripe for such measures, but voluntary sterilization with the consent of all concerned, as introduced into Switzerland fifteen years ago, could and should be tried. That the medical profession is awakening to the importance of the problem is indicated by the prominence given to the discussion on "mental deficiency in its social aspect" at the meeting in July last of the British Medical Association in Portsmouth. It is, as one speaker said, "part of the responsibility of the medical profession to see that these problems are faced."

Euthanasia for cases of hopeless and painful disease is another measure to which public sentiment objects. Surely it is both rational and humane to end a useless and painful existence which is nothing but misery both for the sufferer and for the relatives and friends.

Of course, both sterilization of the unfit and euthanasia must be provided with proper legal safeguards and their application may involve difficulties.

#### Medical Curricula.

The temptation to discuss medical curricula is great, but must be overcome. All our Australian Universities have recently revised their medical curricula and time must be allowed to see how they succeed. The only criticism that may be offered, is that tradition has still too much influence and the dead hand of the past holds too much power. Some of the knowledge still demanded might be abolished to make room for new subjects of greater importance.

#### Medical Terminology.

Might one venture also to put in a plea for simplification of medical terminology? Much of it is hybrid and uncouth and it is often lacking in uniformity. For instance, perityphlitis was a suitable Greek word coined to indicate inflam-

mation round the blind end of the large bowel. When it was found that the symptoms of perityphlitis were due to inflammation of the *appendix vermiformis cecii*, Latin for the worm-like appendage of the blind bowel, the disease was given the hybrid and ugly, but now familiar name of appendicitis. Inflammation of the peritoneum is rightly called peritonitis, but why is inflammation of the lung called pneumonia and of the pleura, pleurisy? We speak of leucocytes, but how many call the red cells erythrocytes? Students and practitioners talk glibly of phagocytes, opsonins and anaphylaxis, but how many know their literal meaning?

The "new psychologists" are responsible for coining a number of terms hardly comprehensible by the uninitiated. A famous statesman once referred to an equally great rival as "inebriated by the exuberance of his own verbosity." Some of the disciples of the new psychology might be regarded as hypnotized by the unintelligibility of their own jargon.

This is not to be regarded as a denunciation of the new psychology itself. Only those who have carefully studied the subject, can justly criticize.

It must be fully admitted also that practitioners of medicine must not neglect any method, such as that of psycho-analysis, that may help in either diagnosis or treatment, nor should they allow them to be exploited by the laity. But when the late Dr. W. H. R. Rivers, a truly scientific and universally recognized authority on the subject, challenges the soundness of the new theories in many respects and when a leader so eminent, so revered and so representative as Sir Clifford Allbutt denounces them as "false science," the rank and file may hesitate to accept all that the new psychologists claim until their views have been subjected to further very careful and truly scientific research.

#### The Philosophy of Medicine.

Research! That is the keynote of progress. If we "glance into the dark backward and abysm of time" we shall see that medicine arose out of credulity and superstition. The ancient priest and medicine man used incantations and charm. Steadily, if very slowly, medicine has evolved as a science, broad-based on the other physical sciences and on research. It has changed, as Sir Clifford Allbutt has said, "from a craft of tradition and sagacity to an applied science of analysis and law; from a descriptive code of surface phenomena to the discovery of deeper affinities, from a set of rules and axioms of quality to measurements of quantity." The evolution is still going on and is very far from complete. Our limitations are great. The unknown is immense. But year by year the circle of limitation is widened. The area of the unknown narrowed.

Rolland has well said: "The essence of man lies in his marvellous faculty for seeking truth, seeing it, loving it and sacrificing himself to it." We look especially to the young to carry out this search. As Rolland further said: "Old people must learn from the young. They have profited by us and are ungrateful; that is in the order of things. But, being enriched by our efforts, they will go further than we. They will realize what we attempted. It is

splendid to see this perpetual, new flowering of the human soul, the vigorous optimism of young people."

Mr. Bernard Shaw in his play "Back to Methuselah" suggested that the span of human life ought to be extended and Dr. Leonard Williams recently maintained that, if the average life of the lower animal is estimated in relation to the time taken to reach maturity, the normal life span of man ought to be from one hundred and twenty to one hundred and forty years. Metchnikoff alleged that on a sour milk dietary man might live to one hundred and eighty.

Professor Osborne, of Melbourne, on the other hand has given physiological reasons why much increase of longevity cannot be expected and has pointed out that unless the physical apparatus of memory can be greatly increased, the span of life must remain much as it is. A. R. Wallace maintained that death was advantageous by preventing overcrowding with the aged and incompetent.

#### Remember Kipling's "Song of the Old Men":

This is our lot if we live so long  
And labour unto the end  
That we outlive the impatient years  
And the much too patient friend;  
And because we know we have breath in our mouth  
And think we have thoughts in our head,  
We shall assume that we are alive  
Whereas we are really dead.

Would it be desirable, even if it were possible, to increase the span of life, unless youth could be retained as well? Nearly all the best work in the world has been done by the young. Most of its poets, artists, scientists, soldiers, explorers and navigators achieved their greatest success in youth.

The researches of Steinach and the experiments and operations of Voronoff, however, suggest that not only may life be prolonged, but even youth may be restored by the surgeon's art. It is claimed that the implantation of gonads not only acts beneficially on sexual capacity, but that their internal secretion stimulates other enfeebled endocrine glands and rejuvenates the very blood vessels themselves.

While to the young is given energy and initiation, clear vision and inspiration, let them not forget what others have done. Goethe once said:

If I could give an account of all that I owed to great predecessors and contemporaries, there would be but a small balance in my favour. In point of fact we are all collective beings, do what we may; for how little have we and are we that we can strictly call our own property? We must all receive and learn, both from those who were before us and from those who are with us."

It is in recognition of the fact that we are all collective beings that we are gathered together in this Congress. May our united labours tend to the perfecting of truth! May we leave it strengthened by our fellowship, heartened to further effort! We cannot all hope to be Pasteurs or Jenners, Hunters or Listers, but each can, in Meredith's words "go forth in faith if he has made his mind God's temple, dedicate to Truth." To modify the words of St. Paul: "Reaching forth unto those things that are before, let us press towards the mark, for the prize of our high calling."

Ours is indeed a "high calling" offering, as Paget said, "the most complete and constant union of those three qualities which have the greatest charm for pure and active minds: novelty, utility and charity."

Although our profession is such a high calling, it does not always receive full acknowledgement as such. Sir Clifford Allbutt once observed that Medicine is the Cinderella of the professions. The Church, the Navy and the Army, the Law have long been established in society with social recognition and privileges not yet granted to Medicine. Our profession, however, is steadily growing in influence and claiming its rightful place in the councils of the nations. Men like Monsieur Clemenceau, Sir Auckland Geddes, Dr. Addison, Sir William McGregor, our own Drs. Earle Page and Stanley Argyle and others have proved that, given opportunity, medical men can successfully occupy the highest positions in the State.

Nevertheless, governments and their officials not only frequently fail to take advantage of medical opinion, but even flout it, as in the case of the *National Insurance Act* in Great Britain, the recent *Health Act* in Victoria and the amendments of the *Medical Act* in Tasmania, the last one of the most flagrant examples of unjustifiable and iniquitous legislation imaginable.

In conclusion, it may be asked to what end do we devote our lives to this high calling, "scorn delights and live laborious days" that we may study life and promote its culture? What conception have we formed of any general scheme of life and of its relation to the universe?

The training of medical practitioners tends to make them adopt a mechanistic, material conception of life. The student must deal with the body as a machine and regard its activities as responses to external physical stimuli. It is the only way in which, at present, he can advantageously study life. But it does not follow that human life is solely mechanical. R. L. Stevenson, speaking of the strangeness of man, said: "To touch the heart of his mystery we find in him one thought, strange to the point of lunacy, the thought of duty, the thought of something owing to himself, to his neighbour, to his God." If life be purely mechanistic, the response of structure to environment, whence comes this urge of duty? Why do men always strive to know, why do they pursue research? Is it not because, in the words of Meredith:

The gloomy wherefore of our battlefield  
Solves in the spirit.

Professor Haldane, a physiologist and a physicist of admitted eminence and authority, recently asserted that:

The attempt to establish biology on a mechanistic basis has been a gigantic failure . . . . Since the time of the mechanistic movement in biology last century it has been generally taken for granted by physiologists that in the investigation of life all considerations of a so-called teleological character must be left out of account, and this assumption has, in every direction, fettered and misled investigators. The time has come for examination of our axioms and a strict inquiry as to how far they are valid and

consistent with experience. In the course of this examination the spiritual interpretation, as the supreme interpretation, of the universe is coming again to his own.

This opinion corroborates what Sir Harry Allen told us at our last Melbourne meeting. Some may remember his words: "Let us rather hold that in every manifestation of energy the physical and the spiritual are both present."

Lord Balfour in a recent lecture asked: "Can we believe that Unreason has produced Reason? Is it not necessary to postulate some form of Reason, some element of purpose in the beginning and as transfusing the process from beginning to end?"

May not each of use say in the words of Tennyson:

Yet I doubt not through the ages one increasing  
purpose runs  
And the thoughts of men are widened with the  
process of the suns

and hold with Meredith that we are "Sprung of an aim, supernal of Reason, to find the great Over-Reason, we name Beneficence—Mind seeking Mind."

We, as rational members of a scientific profession, must believe in organic evolution, must agree with the American Association for the Advancement of Science, in its recent pronouncement, that "No scientific generalization is more strongly supported by thoroughly tested evidence." Students of history and sociology, however, assure us that there is no absolute law of human progress. Man has advanced, he has also retrograded. Man lives in an environment of two kinds—the one physical and permanent—a universe of unalterable law, the other artificial, created by himself and capable of modification. Most of man's ills, as Metchnikoff has well pointed out, including his diseases, are due to want of adaptation. It is man's duty to search out the unalterable laws and adapt himself to them, for he has extraordinary adaptability and also to find out how his artificial environment can be modified, his condition bettered, his progress assured.

Kipling has told us that "Man has always searched and more than any other the medicine man, the healer has been hottest on the track; he went up against the darkness that clothed him, to find out what order of created being he might be, to find the Divinity hidden in him, to find the essential unity of all created things."

In endeavouring to pierce the darkness and mystery that surround us, we do well to be humble and reverent. Let us remember Pasteur's attitude, indicated in the following words of his oration on Litré:

He who proclaims the existence of the Infinite, and none can avoid it, accumulates in that affirmation more of the supernatural than is to be found in all the miracles of all the religions; for the notion of the Infinite presents that double character—that it forces itself upon us and yet is incomprehensible. When that notion seizes upon our understanding, we can but kneel.

In this spirit let us search on, and hope ultimately to find "this essential unity of all created things," the unity of which Tennyson sang: "One God, one Law, one Element and one far off Divine event to which the whole Creation moves."

## Inaugural Meeting.

THE first session of the Australasian Medical Congress (British Medical Association) was opened by His Excellency the Governor-General of Australia on November 12, 1923. The meeting was held in the Wesley Church, Collins Street, Melbourne, instead of at the Melbourne Town Hall, on account of the difficulties arising from the police strike during the previous week. The platform was occupied by His Excellency, Lord Forster, The Acting Prime Minister (Dr. Earle Page), the Premier of Victoria, the Lord Mayor of Melbourne, the Honourable Dr. S. S. Argyle (Minister of Health of Victoria), Mr. G. A. Syme (President of Congress), Sir William Macewen (Past-President of the British Medical Association) and Drs. F. Antill Pockley and Dr. A. C. Purchas (Past-Presidents of the Australasian Medical Congress).

HIS EXCELLENCY THE GOVERNOR-GENERAL, in declaring the Congress open, dealt with the preventive aspect of medical science and made special reference to the small percentage of the population who were physically fit. When war broke out, they had learned this fact. He paid a graceful tribute to the medical profession, more particularly in regard to the immense amount of work which was done freely and without remuneration. He wished the members success in their undertakings.

MR. G. A. SYME, President of Congress, welcomed Sir William Macewen as representative of the great organization that had taken over the Congress. He took the opportunity of thanking the Council of the British Medical Association for having acceded to the request of the Executive Committee to induce Sir William to travel half-way round the world to attend the first meeting of the Congress under the auspices of the Federal Committee of the British Medical Association in Australia.

### PRESIDENT'S ADDRESS.

Mr. Syme then delivered his address (see page 585). Votes of thanks were proposed by SIR WILLIAM MACEWEN and DR. EARLE PAGE and were carried by acclamation. THE PREMIER OF VICTORIA, THE LORD MAYOR OF MELBOURNE, THE MINISTER OF HEALTH OF VICTORIA (DR. S. S. ARGYLE), DR. F. ANTILL POCKLEY and DR. A. C. PURCHAS made short speeches.

### GOLD MEDAL OF THE ASSOCIATION IN AUSTRALIA.

THE PRESIDENT presented the Gold Medal of the British Medical Association in Australia on behalf of the Federal Committee to Dr. W. T. HAYWARD, C.M.G., and Dr. R. H. TODD. A short account of his remarks will be published in a subsequent issue in connexion with the meeting of the Federal Committee.

## The Sections.

The following is a summary of the proceedings of the twelve Sections of Congress. There were meetings in the mornings and afternoons on November 13, 15 and 16 and in the mornings only on November 14 and 17, 1923. Some of the sessions were combined sessions of two or more Sections and the meeting on November 17 took the form of a combination of all the Sections.

### SECTION I.—MEDICINE.

#### The Diagnosis of Early Chronic Pulmonary Tuberculosis.

AFTER the members had been welcomed by Dr. W. MARSHALL MACDONALD, the President of the Section, DR. A. SMITH (Sydney) opened a discussion in which the Section of Radiology also took part, on the diagnosis of early chronic pulmonary tuberculosis. He stated that the onset was common in the young adult. He alluded to the

three stages commonly used as the basis for classification and pointed out that fibrosis and necrosis went on side by side; the distinction of these stages was artificial. The progress of fibrosis was toward cure and that of necrosis towards advancement of the disease.

The careful correlation of clinical, radiological and serological data was necessary for diagnosis. He described the pathology and its relation to clinical signs. In dealing with the invasion of a bronchus by a tubercular nodule and the spread of the tubercles to the lung tissue, he said that the latter event coincided with alterations in the auscultatory phenomena, such as diminished air entry and crepitations. He pointed out that these auscultatory signs might occur early or late in the disease. Apart from the tubercles certain secondary physical characteristics developed, such as shrinkage and collapse of the lung, and these gave rise to clinical signs, such as diminished breath sounds, increased vocal resonance and alteration of percussion note. There was no relationship between structural changes and the intensity of symptoms. "Toxæmia" was the most important early sign. There was no phthisis without cough, fever, night sweats, rapid pulse, loss of weight or some other result of "toxæmia." The presence of tubercle bacilli in the sputum was the only certain means of diagnosis. He did not lay much stress on the value of the reactions to tuberculin as indicators of active or passive disease.

The onset of chronic pulmonary tuberculosis might be manifested by dyspnoea, anorexia (60% of patients at Broken Hill had dyspeptic symptoms) with pallor, the hæmoglobin being diminished, and with neurasthenic symptoms. Fever and increased pulse rate were the most important and conclusive physical signs. The temperature should be taken at rest and after exercise. A temperature over 37.3° C. (99.2° F.) demanded explanation. In tuberculosis the temperature after exercise was persistently raised for two hours or more. Inspection, palpation and percussion were very important in the examination, more so, perhaps, than auscultation. Examination by means of X-rays played a part in the diagnosis.

DR. A. T. H. NISBET (Brisbane) stated that from the radiological point of view the comparison of skiagrams taken at intervals of three to six months was of great value in the diagnosis of pulmonary tuberculosis. Extension or healing of the lesions could then be noted. The stereoscopic views were very valuable. He emphasized the value of examination during deep inspiration. Diminished movements of the diaphragm and circular opacities with fluffy edges might be noted. Fan-shaped opacities known as "Donovan's fans" occurred in both pneumoconiosis and tuberculosis. Slight enlargement of hilar glands and calcification were not very significant. Hilar tuberculosis occurred rarely. The size and shape of the heart were of value, the heart being almost cylindrical at times. This indicated lack of tone. It was usually not possible to tell from the skiagraphic picture whether the lesion was active or not. Consultation between physician and radiologist was essential. He had had the opportunity of injecting the lung of a tuberculous patient with a lead solution after death and had found that the tuberculous area which had been demonstrated clinically and by X-rays before death, had not been invaded by the solution.

DR. C. B. BLACKBURN (Sydney) emphasized the fact that it was rare to diagnose pulmonary tuberculosis clinically at an early stage of the disease. This had been shown in the skiagrams. In many cases evidence of a lesion could be seen in the skiagram before any clinical sign could be detected. On the other hand no sign of disease might be detected on X-ray examination when the clinical diagnosis was obvious. The skiagram did not show whether the lesion was active or not. He pointed out that debility was not an invariable accompaniment of pulmonary tuberculosis.

DR. J. G. EDWARDS (Sydney) considered that the diagnosis of pulmonary tuberculosis by X-rays was difficult. He did not use screen examination at the present time, but plates were taken in full inspiration. The commonest site of lesions was in the upper part of the lung near

the interlobar line. He rarely diagnosed basal tuberculosis. Perihilar tuberculosis was more common in children. Apical pleurisy was generally tuberculous. Calcification of a first rib and pulmonary hydatids had sometimes been mistaken for pulmonary tuberculosis.

DR. H. M. JAMES (Macleod) put forward the views of the Repatriation Department based on the records of the examination of one thousand patients. Very few infections in soldiers had arisen following serious illnesses or wounds, but a large percentage had followed gassing. He laid emphasis on chest lagging and a slight subfebrile temperature.

DR. W. H. STEEL (Stanthorpe) particularly considered the necessity for early diagnosis and treatment.

DR. V. McDOWALL (Brisbane) said that it was difficult to find an X-ray picture representing a normal lung. He thought that screening was of value and he considered that the radiologist should always know the history of the patient's illness.

DR. L. S. LATHAM (Melbourne) laid stress on the importance of recognizing whether tuberculosis was active or not and of considering the probable effects of the disease on the patient's life, rather than the pathological state of the lung. He considered that the presence of tubercle bacilli in the sputum meant active tuberculosis. The von Pirquet test was not of much value and the subcutaneous injection of tuberculin was only useful if it produced focal reaction.

DR. H. M. HEWLETT (Melbourne) thought a screen examination with X-rays alone was useless, but was of value in association with a film. The stereoscope was not essential. Re-examination after six to eight weeks was helpful.

DR. F. GUY GRIFFITHS (Sydney) likened the tuberculous process to the syphilitic process; it commenced with a "chancre" in the wall of a bronchus; the second stage was an affection of the bronchial glands and the third stage an invasion of lung substance. It was the last stage that was generally regarded as early pulmonary tuberculosis. Skiagrams merely demonstrated shadows and could not help in deciding the cause of the lesion. Pulmonary tuberculosis should be suspected in every patient who showed signs of ill-health not explained by other evident disease. Koch's tuberculin should be used to determine whether the lesion was active or not, the focal reaction being the important one.

DR. M. A. MCINTYRE SINCLAIR (Wentworth Falls) considered that the loss of weight, evening rise of temperature and the presence of tubercle bacilli in the sputum were important in diagnosis. The subcutaneous tuberculin test had some value.

DR. SINCLAIR GILLIES (Sydney) mentioned the importance of excluding suppuration in the accessory nasal sinuses. He considered that the diagnosis should be made before the appearance of physical signs to be of value.

DR. SYDNEY JAMIESON (Sydney) emphasized the necessity of careful history.

DR. L. B. ELWELL (Stanthorpe) read a paper on the treatment of pulmonary tuberculosis with tuberculin. He had followed Dr. Camac Wilkinson's method, but had used smaller doses. In one hundred and two patients he had obtained almost uniformly good results over a period of four years.

DR. CAMAC WILKINSON (London) discussed the paper. He did not consider such small doses could have any effect. He pointed out the danger of using tuberculin except after skilled instruction.

#### Epidemic Encephalitis.

A DISCUSSION on epidemic encephalitis before a combined meeting of the Sections of Medicine, Pathology, Neurology and Psychiatry was opened by DR. W. MARSHALL MACDONALD (Dunedin) who gave a very lucid review of the history and symptomatology of the disease. The protean manifestations of *encephalitis lethargica* were connected with the fact that the lesions might be situated anywhere in the cerebro-spinal tract. He dealt at some length with the sequelæ which generally took the form of

physical and mental inertia. Occasionally serious psychoses and suicidal tendencies were exhibited as after effects of this disease.

In children perversions, changes in temperament and character, nocturnal restlessness, facial tics and spasms were observed. After considering in detail the differential diagnosis of *encephalitis lethargica*, more particularly from tuberculous meningitis, Dr. Marshall Macdonald intimated that he had tried the intravenous injection of "Urotropine," auto-hæmo-therapy, sialogogues and the fixation abscess of Netter in treatment. Approximately half of his patients seemed to benefit by the last-mentioned, which was induced by the injection of 3.5 cubic centimetres of motor spirit.

In a comprehensive survey of the disease Dr. Macdonald gave prominence to the myoclonic form and the Parkinsonian mask. The latter might appear early, but as a rule was a late development. It was not to be confused with double facial paralysis.

PROFESSOR J. B. CLELAND (Adelaide), in a contribution to the discussion, placed *encephalitis lethargica* along with hydrophobia, mumps, variola, varicella, febrile herpes as ectodermoses due to infection by the members of a group of allied viruses. He further entered into discussion regarding the pathological entity of the Australian X-disease and intimated that he had sent pathological material from patients affected with X-disease to Dr. Simon Flexner in order to obtain his pronouncement on the relationship between polio-myelo-encephalitis, X-disease and *encephalitis lethargica*. Dr. Flexner had been of opinion that the X-disease differed materially in its histological manifestations from *encephalitis lethargica*, but he considered that the lesions very closely resembled those of poli-myelo-encephalitis. At the same time the results of animal experiments in which X-disease was transmitted to several sheep, a calf and a foal, constituted an obstacle in the way of identifying X-disease with polio-myelitis.

After submitting reasons for regarding X-disease as a clinical and pathological entity, Professor Cleland submitted the memorandum recorded in the proceedings of the Section of Pathology.

PROFESSOR CARMALT JONES (Dunedin) confined his remarks to the diagnosis of *encephalitis lethargica*. He enumerated the several clinical types distinguished by McNalty and gave great prominence to the criteria for diagnosis insisted on by Hume. Of the seven points: (1) fever, (2) acute mental disturbance, (3) lethargy, (4) myoclonus, (5) Parkinsonian expression, (6) neuritic pains, (7) ocular symptoms, two at least should be demonstrable (Hume).

Professor Carmalt Jones emphasized that diagnosis could only be accomplished by very careful procedure of exclusion. In view of the fact that the residua of *encephalitis lethargica* were so intractable, great care should be exercised not to pass undiagnosable neurological conditions into this category without mature consideration.

DR. A. W. HOLMES & COURT (Sydney) described the clinical features of *encephalitis lethargica* as seen in and around Sydney during the last two or three years. Thirty five examples had occurred in 1922 and 1923, but this was probably not a true indication of the incidence of the disease, owing to the fact that many minor cases were probably overlooked. He dealt with diagnosis from tuberculous meningitis in children and from cerebral tumour, thrombosis, hæmorrhage and cerebro-spinal syphilis in adults.

DR. KEITH INGLIS also contributed some remarks, the substance of which is recorded in the account of the session of the Section of Pathology.

DR. R. R. STAWELL (Melbourne) said that the first appearance of *encephalitis lethargica* in Victoria had occurred in June, 1919. Within a few weeks from that time he saw ten patients in widely distributed suburbs and although there may have been a few sporadic cases prior to the date mentioned, the disease could not have been present in its epidemic form. Diagnosis was to be made by rigid exclusion after systematic examination. The three clinical points of greatest value were those

relating to the mode of onset, examination of the eyes and the findings in the cerebro-spinal fluid. He had never noted papilloedema in association with lethargic encephalitis and it was a curious fact that diplopia often occurred apart from strabismus. It was to be recognized that *encephalitis lethargica* was endemic in Victoria and likely to reappear in epidemic form.

DR. S. V. SEWELL (Melbourne) endorsed the remarks of Dr. Stawell concerning the importance of inquiry as to the mode of onset. He discussed the clinical group in which the symptoms were almost entirely of spinal origin. The march of events resembled that in Landry's paralysis.

PROFESSOR A. E. MILLS (Sydney) indicated the need for care in making a diagnosis of *encephalitis lethargica* as against tuberculous meningitis in children. In a consideration of the cause of the lethargy, he thought it highly probable that the principal factor was increased intracranial pressure, due to the accumulation of unusual quantities of cerebro-spinal fluid. He suggested that in some instances the brunt of the infection might fall on the choroid plexus.

DR. OLIVER LATHAM (Sydney) directed his remarks to the pathological picture in encephalitis and pointed out that the method of paraffin imbedding was not equal to the production of satisfactory results in the examination of nervous tissues for the diagnosis of encephalitis. He had found a special celloidin technique much superior.

Other contributors to the discussion were: Drs. SYDNEY JAMIESON, FIASCHI, LEGGE, HENRY LAURIE, NOBLE and OSTERMEYER.

#### "Insulin."

DR. J. F. WILKINSON (Melbourne) read a paper on the use of "Insulin" in general practice. He stated that "Insulin" had opened up an immense field for the treatment of *diabetes mellitus*, but that the dietetic management was still as essential as before its introduction. He was of the opinion that blood sugar estimation should be made at the beginning of treatment, if possible. Treatment could be carried out with "Insulin" without a blood sugar test if great care was taken in the frequent examination of the urine for sugar and if small doses of "Insulin" were employed at first. In severe cases of diabetes with severe symptoms there was no doubt of the diagnosis, but difficulty sometimes arose in mild cases. In order to be sure that the affection was *diabetes mellitus*, Maclean had recommended the giving of fifty grammes of glucose; if only a trace of sugar appeared in the urine, the condition was probably not *diabetes mellitus*. In cases of coma the practitioner should commence with ten units of "Insulin" and half a cup of orange juice; the latter was given lest the blood concentration was not above the normal. A specimen of urine should be examined after two hours and again at intervals of one hour and "Insulin" should be injected at each of these times and orange juice administered as long as diacetic acid occurred in the urine. The foregoing was recommended when blood sugar could not be estimated. In regard to diet the practitioner must learn to estimate the caloric value and to work out the proportions of the carbo-hydrates, proteins and fats for each patient. He should commence with a low diet and gradually increase it until the patient received not more than two-thirds of a gramme of protein per kilogram of body weight. The remainder of the diet should be made up of proteins and fats in such proportion as to prevent the occurrence of fatty acids in the urine. The aim of the treatment should be to make the urine sugar free and if possible to reduce the blood sugar to the normal level. It was advisable to obtain a blood sugar estimation as soon as the urine tended to remain sugar free. The carbo-hydrate which varied between fifteen and sixty grammes per day, could be increased as the treatment proceeded, provided that sugar did not appear in the urine. Later the dosage of "Insulin" could be reduced, if the patient's carbo-hydrate tolerance increased. He had given doses of "Insulin" varying between five and sixty units per day. It was necessary to watch for symptoms of hypoglycæmia and to warn the patient and the nurse what these symptoms might be. Hunger, nervousness, sweating,

and tremor were the early symptoms. If orange juice or glucose were given, recovery commonly occurred in half an hour. In coma he had given as much as ten units of "Insulin" every hour for three doses and then ten units every two hours for two doses. One unit of "Insulin" was said to metabolize two grammes of glucose. He spoke of several patients with impending coma who had been relieved on these lines, and he stated that one of his patients controlled her sugar output by an injection of one dose of "Insulin" *per diem* before the midday meal.

PROFESSOR A. E. MILLS was glad that emphasis had been laid on the importance of diet. He could not see any reason for starting with doses larger than three or five units of "Insulin." He thought that diets of low caloric value, such as 400 to 500 calories, were too low and would help to cause acetonaemia. The price of "Insulin" was too high for poor people to be able to afford it.

DR. J. MACDONALD GILL (Sydney) had treated eight patients suffering from diabetes with "Insulin." One was a child of three years; it had manifested symptoms of hypoglycæmia after receiving six units and three units per day had been later found sufficient. An attempt should be made to increase the tolerance for carbo-hydrates. If blood sugar estimations could not be made, it was advisable to keep a small trace of sugar in the urine.

DR. SOUTHWOOD (Adelaide) stated that "Insulin" was made by Professor Brailsford Robertson in Adelaide at the cost of one shilling per ten units as compared with the cost of two shillings and sixpence per ten units of the Commonwealth Serum Laboratories' "Insulin."

DR. GEORGE WILLCOCKS (Sydney) wished to know whether the potency of the "Insulin" produced at the Commonwealth Serum Laboratories had been satisfactory. The "Insulin" used in Sydney more than one week after the date of manufacture in some cases had no power to reduce blood sugar, even though given in large doses, such as sixty units a day.

SIR HENRY MAUDSLEY (Melbourne) thought the cost and the lasting qualities of "Insulin" should be seriously considered as the present position was unsatisfactory, with the high cost and possibly lowering of potency after a week.

DR. H. BUTLER (Hobart) asked when it was necessary to give "Insulin." He thought the luxury of "Insulin" was particularly to be avoided. He had found it necessary to use large doses up to sixty units a day.

DR. C. T. C. DE CRESPIGNY (Adelaide) mentioned experiments in oral administration of "Insulin" in Adelaide. Sixty centigrammes of charcoal had been given to absorb the secretions of the pancreas and one hour later four units of "Insulin." It had no effect.

In reply, DR. WILKINSON said blood sugar estimations were useful, but not essential. He did not advocate a diet of small caloric value, if the larger caloric value could be utilized. He thought the "Insulin" manufactured at the Commonwealth Serum Laboratories remained active for one month. Dieting should be tried in all cases before "Insulin" was administered. More than one gramme of protein per kilogram of body weight should not be given. Nearly 50% of the protein was converted into glucose.

#### Hay Fever and Asthma.

DR. L. A. IVAN MAXWELL (Melbourne) gave a résumé of the anaphylactic phenomenon and of the process of desensitization in the guinea pig. He alluded to the specificity of the reaction and mentioned the cellular and humoral theories of anaphylaxis, to the latter of which he adhered. The family history often showed an inherited tendency to anaphylactic reactions. The commonest causes of hay fever in Victoria were grasses, rye grass, cock's foot and prairie grass; cape weed was another common cause. These all pollenated in September, October and November. A few other plants gave off pollens which caused hay fever in Australia. Patients often reacted to more than one pollen. The intracutaneous injection of pollens for testing purposes might be dangerous. The scratch

test was satisfactory. For desensitization he used solutions of pollens varying between 1 in 20,000 and 1 in 200; constitutional symptoms might occur as a result of these injections; urticaria, asthma and other reactions occasionally occurred. Pseudo-hay fever included rhinorrhœa not due to pollen; it might be due to a septic focus in the nose or sinuses, to horse dandruff or other animal emanations. Positive cutaneous reactions were less frequent in this condition than in true hay fever. Asthma was looked upon as an anaphylactic phenomenon in many cases. It might be due to proteins of pollens, bacteria, animals and foods. There might be a place for neurogenic and metabolic causes. He described the method of preparing the proteins for treatment by desensitization. A diagnosis between asthma and asthmatic bronchitis was difficult. Only 40% or 50% of asthmatic subjects reacted to skin tests. In food and animal sensitiveness, avoidance of the cause was the best treatment. Against pollens desensitization with pollen extract could be carried out. Non-specific treatment included the injection of peptone, of vaccines, of adrenalin and of atropine and morphine and the prolonged administration of potassium iodide and stramonium.

#### Auricular Fibrillation.

In a paper on circus movement in the auricle in auricular flutter and fibrillation, Dr. W. N. HORSFALL (Sydney) pointed out in the first place the normal result obtained when a contracting muscle was connected to a string galvanometer. The direction in which the string moved, indicated the direction of the muscle wave. This principle had been applied in the case of the dog's auricle and had been extended to demonstrate what happened in auricular flutter. It had been found that in the dog's heart the wave of contraction in auricular flutter was circular around the *vena cava* or some other part of the auricle. This wave was continuous throughout the cardiac cycle and occurred at the rate of three hundred per minute. These waves reached the auriculo-ventricular node, but could not pass through that node at such a rate. They passed through at a rate of seventy-five or one hundred and fifty per minute. In auricular fibrillation these waves occurred at the rate of four hundred and fifty per minute. The wave was broken up as it travelled by areas of variable resistance in the diseased auricle. On this account the response of the ventricle was irregular and as many waves passed through to the ventricle as the auriculo-ventricular node could pass on.

Dr. M. D. SILBERBERG (Melbourne) read a paper on digitalis and quinidine in auricular fibrillation. He stated that the actions of digitalis and quinidine were entirely different. Digitalis acted firstly by stimulating the vagus and secondly by depressing the activity of the auriculo-ventricular node. The first action could be shown by injecting 0.0024 to 0.006 grammes of atropine in order to paralyse the vagus physiologically and then noting the effect of digitalis. The first action was mainly to cause slowing; the second caused slowing and some but not complete regularity of the ventricle. In auricular fibrillation the ventricular rate was important from the point of prognosis and digitalis was of value in slowing the rate. The tincture of digitalis was more stable than the infusion and should be prescribed in drops or combined with other tinctures. He enumerated the symptoms of digitalis poisoning and stated that coupled beats were evidence of increased irritability of the ventricle and might progress to fibrillation of the ventricle and death. Quinidine acted mainly on the auricle by prolonging the refractory period of the heart beat and slowing the oscillations in the auricle from four hundred to two hundred per minute. The ventricular rate increased in the first stage of quinidine treatment and there was a danger of producing ventricular flutter. In some cases the prolongation of the refractory period passed off and the circus movement of the auricle was perpetuated. Only about 40% to 60% of patients with auricular fibrillation regained normal rhythm. The danger of quinidine was that of arresting fibrillation and allowing the auricle to contract with the possibility of setting free thrombi from the auricle. The dose was 0.4

gramme every four hours until normal rhythm was established. In some cases 0.2 gramme every four hours was sufficient. Normal rhythm was usually established within three days. The patient obtained considerable subjective relief and some increase of reserve power. Quinidine was most valuable in recent auricular fibrillation. Headache, diarrhoea and vomiting were occasional toxic effects.

Dr. H. RITCHIE (Sydney), Dr. C. B. BLACKBURN and Dr. W. MARSHALL MACDONALD discussed the foregoing papers and emphasized the necessity of restoring cardiac compensation by means of digitalis before administering quinidine. The possible danger of quinidine in arteriosclerotic subjects was mentioned and the possibility of causing *angina pectoris*.

#### Test Meals.

Dr. F. APPERLY (Melbourne) read a paper on the value of fractional test meals and showed diagrams illustrating the acidity of the stomach contents during the gastric cycle. He showed that regurgitation of duodenal fluids was the main factor in influencing acidity. Increased motility of the stomach very largely governed the discharge of the gastric contents and the regurgitation from the duodenum, but irritability of the jejunum might increase regurgitation. The test meal of gruel was drawn off with the aid of a Rehfuß tube every quarter of an hour and tested for acidity and for the presence of bile and blood. The Rehfuß tube did not produce retching as the old stomach tube did. By comparing ten normal persons, he had found that the free acidity was higher with the old stomach tube than with the Rehfuß tube. He thought that the rate of emptying of the stomach had a considerable influence in determining the amount of acidity. An increased rate of evacuation as in duodenal ulcer yielded a high acidity. Fractional test meals appeared to be of value in the diagnosis of pancreatic disease.

PROFESSOR CARMALT JONES discussed the relationship between the X-ray findings and the results of fractional test meal. He was surprised to hear that motor phenomena affected acidity to so great a degree.

Dr. C. B. BLACKBURN said that different foods must affect the results of gastric analysis. Symptoms were often relieved by giving a light diet and possibly this change of diet affected the composition of the gastric juice. Therefore, test meals following the ingestion of gruel could not be universally applied.

Dr. W. MARSHALL MACDONALD stated that since the acid contents of the gastric juice was unaltered when gastrojejunostomy had been performed for duodenal ulcer, he did not consider that operation justifiable for the cure of duodenal ulcer.

#### The Treatment of Cancer.

Dr. SYDNEY JAMIESON read a paper on the principles that should underlie the therapeutics of inoperable carcinoma.

#### Renal Insufficiency.

At a combined meeting of the Sections of Medicine, Surgery and Pathology, with PROFESSOR J. B. CLELAND in the chair, the subject of renal insufficiency was discussed.

Dr. SINCLAIR GILLIES opened the discussion. He defined the hydræmic, azotæmic and mixed types of insufficiency. He outlined the previously accepted characters of chronic nephritis and said that this condition was only part of general vascular disease. He referred to the mode of development of the disease and said that it was the result of a reaction between toxins and the resistance of the vessel walls. He thought that the usual symptoms ascribed to uræmia were not all due to renal failure, especially in the presence of cerebral symptoms and in support of this contention he instanced the paucity of symptoms following removal of the only functioning kidney. He described the various tests used for estimating renal function and said that there was no satisfactory test capable of detecting slight grades of insufficiency. The tests only gave positive results where there was gross renal defect. With regard to ordinary symptoms he referred to albuminuria in the presence of casts and their bearing on renal disease. The

persistent presence of albumin and casts indicated some degree of renal disease.

DR. R. GORDON CRAIG (Sydney) spoke from the surgical aspect. He pointed out the great difference between surgical renal insufficiency and medical renal insufficiency. When the cause was surgical, it was usually of an obstructive nature and when the obstruction was removed, the renal function could recover. He referred to the experience of Rose Bradford who had demonstrated that two-thirds of renal tissue could be removed without interrupting the renal function, while the removal of three-quarters caused death. The functional tests did not reveal the first stages of disease, but only indicated the approach of the danger margin. From the surgical point of view the measure of function was of paramount importance. Surgeons had been enabled to recognize how near the patient was to this danger margin and could arrange the correct time to operate and whether to operate in one or two stages. Since accurate estimates of renal function had been possible, the mortality rate in prostatic surgery had been reduced from 25% to less than 3%. Dr. Craig then described the indigo-carmin and phenol-sulphone-phthalein tests. He referred, particularly, to a test called the dilution and concentration test which he learnt in Vienna two years previously. When it was necessary to test the function of one kidney against that of the other kidney, the results were not so reliable as in the combined tests. The presence of a catheter in the urethra, for instance, depressed the function of the kidney. If the healthy kidney were free from pus and gross infection, no matter how much impairment were disclosed by the functional test, he would give the patient a chance if his clinical condition were good. The evidence of inefficiency in the sound kidney would disappear, when the other kidney was removed. Dr. Craig placed no reliance on functional tests if the clinical condition did not coincide in some degree.

PROFESSOR CARMALT JONES continued the discussion from the medical aspect and said that in Dunedin they placed most reliance on the estimation of the total non-protein nitrogen. He described the methods used in carrying out this test. He believed that this represented the delicate test which Dr. Gillies said was necessary to detect the earlier stages of renal disease. It distinguished between the hydræmic and azotæmic types and could be used not only in diagnosis, but also for arriving at a correct prognosis and for estimating the value of treatment.

A paper contributed by PROFESSOR BRAILSFORD ROBERTSON (Adelaide) dealing with the chemical aspect of renal efficiency was read by DR. APPERLY.

MR. JULIAN SMITH (Melbourne) said that he had learnt to rely on practical tests, such as the indigo-carmin test for estimating renal function in surgical cases. He considered that blood urea estimation was firmly established in surgical practice.

DR. S. HARRY HARRIS (Sydney) agreed with former speakers that there was no certain method of detecting early renal disease. For fifteen years he had consistently used the indigo-carmin test. The urea concentration test was the one most liable to fallacy. He described his method of using the indigo-carmin test and said it was simple and efficient. He had only had two deaths among patients on whose upper urinary tract he had operated during the past ten years. His practice was not to operate without knowing the function of each kidney. He had not had a single death from uræmia of patients on whose lower urinary tract he had operated during the past ten years. He had used the indigo-carmin test consistently and had found that if a good blue colour appeared, operation might safely be undertaken in so far as the renal risk was concerned. There were, however, few patients with adequate renal function for whom operation would have to be refused on the score of serious defect in other organs.

DR. R. J. SILVERTON (Sydney) emphasized the importance of considering the whole clinical condition of the patient and said that the tests need not be very accurate. He used the phenol-sulphone-phthalein and the urea concentration tests. The former differed little from the indigo-

carmin test, but yielded more accurate information. He showed that during decompression of the bladder there was at first some depression of renal function and that thus was the reason why suprapubic cystotomy was dangerous in severe cases of distension. For estimating the efficiency of each kidney separately, he did not as a rule use the phthalein test, because the test was falsified by the escape of urine alongside the ureteral catheter.

DR. C. H. KELLAWAY (Melbourne) confined his remarks to renal inefficiency in nephritis. He said that it had been demonstrated that at no one time were all the units of the kidney in action together. When extra work was to be done, extra units were called into action. Therefore, the lesions which caused functional impairment, were gross lesions. He referred to Professor Brailsford Robertson's paper. It appeared that glucose in the blood was present in a form which could not be dialysed through the kidney and this would explain its absence in the urine in renal disease. The renal short circuit mentioned in the same paper, whereby there was excessive reabsorption of the urea through the damaged walls of the tubules, indicated that retention was due to increased permeability of the damaged tubules.

DR. OLIVER LATHAM said that in the Pathology Department of the mental hospitals of Sydney they had carried out non-protein nitrogen, urea, uric acid and creatinin estimations. From the results of examination of the urine of one hundred and forty patients with mental affections he concluded that all four substances should be estimated and the findings correlated. He believed the estimation of creatinin was of great importance.

DR. SINCLAIR GILLIES in reply said that the discussion had brought out the fact that, while the functional tests were of value to the surgeon, the physician had no test which would disclose early disease and that no light was thrown on the causation of uræmia. The only valuable signs of uræmia were anorexia, vomiting, progressive weakness and loss of weight.

DR. GORDON CRAIG in reply said that he had not emphasized the importance of the correlation of the blood urea with the phenol-sulphone-phthalein and dilution concentration tests. When doubt existed, the estimation of blood urea was a great check and when it coincided with the results of other tests he had had no failures in his operative procedures.

#### Focal Infections.

DR. A. V. M. ANDERSON (Melbourne) read a paper on the rôle of focal infection in disease. He pointed out that focal infection of the teeth, the nasal sinuses and the throat gave rise at times to general systemic disease. He alluded to albuminuria which was frequently associated with tonsillar disease, and he considered that hypertrophied tonsils should be removed, even if no sepsis could be demonstrated. He asked whether the cause of the duodenal ulceration which sometimes followed burns, was reflex or infective. The gall bladder and the colon might be the foci of infection which might cause much ill-health, and the various anæmias had been attributed to infection of this kind. It was difficult to prove that exophthalmic goitre or rheumatoid arthritis could be due to colonic stasis and infection. The ischio-rectal fossa was a common site for infection and this might be tuberculous or more commonly a mixed infection.

DR. S. O. COWEN (Melbourne) said that the proof of the relation between focal sepsis and disease was lacking and that their belief in this matter did not have a very secure foundation. He asked whether the distant lesions were produced by bacterial metastasis, by bacterial toxins or by local sensitiveness to bacterial proteins, that was an anaphylactic reaction. He pointed out that Rosenow's work showing the relationship between streptococcal infection and lesions such as gastric ulcer, iritis and other diseases lacked confirmation.

DR. V. MACDONALD (Melbourne) pleaded for restraint in extracting teeth when a mild focus of infection might arise, though he considered that such a focus might be the cause of systemic affection. He had frequently recovered diph-

theroid organisms from the roots of teeth of patients who suffered with *arthritis deformans*, but he did not know whether there was a causal relationship. He suggested that the mouth should be cleansed before extractions were performed.

PROFESSOR A. E. MILLS deprecated the too wide-spread acceptance of the doctrines of focal infection. He thought that very careful consideration should be given before extracting teeth or dealing surgically with other foci of possible infection. If a tonsil were infected the cervical glands would be enlarged and he regarded this enlargement as an expression of the tonsillar infection.

DR. W. MARSHALL MACDONALD stated that X-ray pictures had been taken of the jaws of three hundred patients who were edentulous and evidence of infection obtained in one hundred and eighty. In the case of definite apical abscess he thought extraction of teeth was justified.

DR. W. N. HORSFALL and DR. F. L. APPERLY also discussed the paper.

#### The Ætiology of Goitre.

DR. SYDNEY PEEN (Melbourne) read a paper in which he emphasized the necessity of taking a wide view in considering the ætiology of goitre. He laid stress on the association of goitre with calcium in the water and on the benefit to be derived from the administration of iodine in parenchymatous goitre and of calcium in toxic goitre. He also pointed out that the onset of goitre was frequently associated with infection and nerve strain and he considered that the removal of sources of infection was of great importance in treatment.

DR. W. MARSHALL MACDONALD stated that school children in some parts of New Zealand received 1.8 grammes of iodine twice a year and the result was that goitre in those districts had been much lessened. It had been sufficient in some cases to hang up a jar containing tincture of iodine in the school room.

DR. TERENCE BUTLER (Hobart) and DR. D. G. CROLL (Brisbane) also discussed the paper.

#### Gall Stones.

DR. J. R. BELL (Melbourne) in his paper on gall stones in cholesterol metabolism in relation to pathogenesis, diagnosis and treatment pointed out that three factors were suggested in the causation of gall stones. These were infection, biliary stasis and increased cholesterol content of the blood. In sixteen patients examined by him the cholesterol content of the blood had been found to be increased in association with cholecystitis and gall stones. It had been found possible to produce gall stones by feeding animals with cholesterol. Cholesterol in the blood varied with a number of factors especially arterio-sclerosis and chronic nephritis. If allowance were made for these factors, blood cholesterol estimations were of value in diagnosis of gall stones. More than 0.2% of cholesterol in the blood suggested the possibility of gall stones; the normal content was 0.16%. In treatment he advised the exclusion from the diet of fats and of certain foods in high cholesterol content (yolk of egg and brain).

The paper was discussed by PROFESSOR MILLS and others.

#### Exophthalmic Goitre.

A discussion on the treatment of exophthalmic goitre took place at a combined meeting of the Sections of Medicine, Surgery, Radiology and Ophthalmology.

MR. ALAN NEWTON (Melbourne) read a paper in which he first discussed the risks and results of surgical treatment. He had operated on forty-nine patients with exophthalmic goitre. Only one had died. This one had been the first patient. Since then he had followed Dunhill's technique with excellent results. In operating he considered the following three points essential: (i.) absolute hæmostasis, (ii.) gentleness in handling, (iii.) no loss of time. He considered that the risks of anaesthesia were greatly exaggerated. He used ether as an anaesthetic administered by the open method. Another risk was injury to the recurrent nerve. Of one hundred and twenty patients operated on by various surgeons there had been

in four complete paralysis of one recurrent nerve and in four bilateral paralysis. Injury could not be avoided altogether even by the most competent surgeon for the course of the nerve varied. He considered adequate removal essential, if necessary, in stages. He stated that the risk incurred by patients manifesting auricular fibrillation was no greater than that of other patients. In turning to the standard of cure, he said that the patient should be able to resume his ordinary work and maintain a normal pulse rate. Of thirty-eight patients treated by operation, twenty had been cured, eight much improved, two improved and eight were awaiting further operation.

PROFESSOR A. E. MILLS (Sydney) defined the present state of their knowledge in regard to the pathology of the disease. The special characteristic of exophthalmic goitre was a hyperplasia of the epithelial lining the vesicles of the thyroid gland. The cells lost their cuboidal form, hypertrophied and became columnar. He referred to certain form of colloid goitre in which hyperthyroidism existed. In these cases there was no exophthalmos. He suggested that in the exophthalmic form the goitre represented a response to certain stimuli. The goitre was characterized by an intense vascularity and by a lowering of the iodine content. Professor Mills dealt with the significance of thyroxin and the development of hyperplasia of the gland and asked whether the stimulus which led to the hyperplasia, acted through the nervous system or depended on a hormone. Cannon's work in suturing the phrenic nerve to the cervical sympathetic chain and Wilson's experiments with the electrical stimulation of the cervical sympathetic supported the latter view, while the result of administration of thyroxin on colloid goitre seemed to favour the former. The principles underlying the treatment of exophthalmic goitre were to give an abundance of food of high calorific value and to insure absolute rest. Medicinal treatment was of little avail. In severe cases the best results were obtained from surgical interference. He expressed a doubt whether the results obtained in this way were permanent.

DR. C. T. C. DE CRESPIGNY (Adelaide) maintained that in certain cases a cure followed rest lasting for from five to six weeks, the giving of abundant food, the exclusion of excitement and the removal of septic foci. Bromides were valuable and he had used "Luminal" with success. Surgery of the thyroid gland should be left in the hands of the most skilled surgeons.

MR. H. B. DEVINE reported the results of about five hundred operations on three hundred patients suffering from exophthalmic goitre. The youngest patient was eleven years of age. He had found that the disease frequently followed a disturbance of the reproductive system. Intestinal sepsis, focal infections and general febrile disturbances appeared in the ætiology. Operation was useless when the signs of neurasthenia were evident, but in the fulminating type of hyperthyroidism of youth, in the ordinary type of later life, in adenoma with hyperthyroidism and in long-standing goitre operation led to cure. Great care was essential in operations on patients with the fulminating type. Local anaesthesia or very light general anaesthesia was essential. He emphasized the importance of early operation, but maintained that exophthalmic goitre could not be too advanced for surgical treatment. Medical treatment was of value for a short period before and after operation, but as a means of cure medical treatment had ceased to exist.

DR. J. G. EDWARDS (Sydney) described the technique used by him in the radiological treatment of exophthalmic goitre. He stated that of fifty-six female and forty-six male patients treated at the Sydney Hospital, only three had been subjected to surgical treatment.

DR. C. E. DENNIS (Melbourne) also spoke of the radiological treatment.

DR. H. RIDDELL STANLEY (Melbourne) cited a case of extreme exophthalmos associated with hyperthyroidism.

DR. H. H. TURNBULL (Melbourne) paid a tribute to the surgical treatment of the disease. He admitted that medical treatment was not curative. In discussing the cardiac condition of patients with exophthalmic goitre, he pointed

out that auricular fibrillation was common and was produced by a disturbance to the nervous mechanism of the heart, rather than by actual damage to the cardiac muscle. Restoration to the normal rhythm could be effected by means of quinidine in 60% to 75% of the patients.

DR. J. F. CHAMBERS (Melbourne) and DR. G. N. LORIMER (Melbourne) dealt with the estimation of the basal metabolism in goitrous patients.

DR. SYDNEY JAMIESON (Sydney) and DR. S. PERN (Melbourne) spoke on the causation of the disease.

DR. W. MARSHALL MACDONALD emphasized the preventive aspect of exophthalmic goitre. In New Zealand iodine was administered to school children regularly for this purpose. About two grammes were given to each child twice a year. Mellanby had suggested that fresh vegetables and fruit were important as prophylactic agents. He took exception to the description of the mental state of the patients as neurasthenia. The condition was an anxiety neurosis.

#### Tuberculosis.

A meeting of all the Sections of Congress was held on November 17, 1923, with MR. G. A. SYME, the PRESIDENT, in the chair.

DR. W. J. PENFOLD, Director of the Commonwealth Serum Laboratories, dealt with the incidence of tuberculosis as revealed by the evidence at autopsy and by biological tests. In the first place he referred to infection of cattle with tuberculosis and stated that only a few figures were available. Examination had been carried out of six hundred dairy cattle. They had found that over 16% of the cows supplying milk for human consumption reacted to the tuberculin test, but the proportion of animals in the stud farms of Victoria was 3%. One firm which had supplied bottled milk for infants, had obtained milk from cows of whom 32% were tuberculous. In view of the fact that there was only 3% of tuberculosis among the stud animals, it should be an easy matter to clear the herds of this disease. This matter had been before the public for a long time and it had been held that the problem was too extensive to handle. He thought that the dairymen were as anxious as anyone to meet the difficulty. The methods of protecting the public against infection from this source resolved themselves into the elimination of all infected cows from the herds or the pasteurization or boiling of all milk before distribution. Dr. Penfold held that one or other of these measures should be carried out. If this were compulsory there would be no difficulty in getting rid of bovine tuberculosis.

In the next place Dr. Penfold referred to the types of tubercle bacilli found in human beings. An examination of one hundred and fifty-five samples of sputum and two further samples of material had revealed that tubercle bacilli were present in seventy. In no instance was the bacillus of the bovine type. This would indicate that bovine infection in adults was not a problem that demanded much consideration. Seventy-two samples had been taken at the Children's Hospital, Carlton, from sixty children. In forty-eight tubercle bacilli had been found. Of these nine had been of the bovine type and thirty-nine of the human type. Eight of the children had been under the age of four years; the age of the ninth had not been recorded.

Dr. Penfold next turned to the *post mortem* and biological evidence that had been collected. A large amount of work had been done at the Melbourne Hospital and a considerable amount of information had been collected from Saint Vincent's Hospital and the Adelaide Hospital. Unfortunately they had obtained no figures from Sydney. From the results of the von Pirquet test and from pathological data it appeared that the incidence of tuberculosis in the population of Australia was slightly greater than in Great Britain or elsewhere. This was contrary to popular belief. The von Pirquet test applied to second and third year medical students had revealed 70% of infection; among school children the incidence of infection was 71%, while among infants under four years of age it was 70%. The conditions among the hospital population were very

different. In the Melbourne and Adelaide Hospitals 60% of all patients reacted to the test, while at the Royal Prince Alfred Hospital only 30% reacted. Then at the Children's Hospital, Carlton, only 20% reacted. He suggested that certain diseases might lead to a temporary inhibition of the reaction in latent tuberculosis, so that the proportion of reactions would be reduced in patients in hospitals. He advocated the setting apart of money and men to study many matters in regard to the incidence of the disease.

DR. S. A. SMITH (Sydney) stated that in the discussion in the Section of Medicine the fact had emerged that there was a considerable incidence of active and latent tuberculosis among the general population. It was the duty of the clinician to recognize the active form of the disease as early as possible, in order that the possible sources of infection might be dealt with. Early recognition of tuberculosis was not an easy matter. There was no single criterion on which the diagnosis could be based. There were the signs of bacterial intoxication and the constitutional disturbance, the clinical signs and the response to the tuberculin test. No one of these factors alone could yield a sure diagnosis of early disease. All the factors must be considered. In the individual patient this necessitated care and patience. It was the duty of medical practitioners to take that care and to have that patience. He pointed out that the diagnosis was needed when the physical signs were not obvious. The tuberculin test could not be properly applied unless the patient were kept in bed, preferably in hospital. All this took time and trouble and a grave personal responsibility attached to the work. He held that it was not fair to ask general practitioners to do it, unless facilities for the work were provided. The difficulty was not as great for those attached to the large public hospitals. He therefore urged that provision should be made whereby these forms of investigations could be carried out in all parts of the Commonwealth. Dispensaries should be attached to the great public hospitals, where the advantages of the resources of the pathological, of the X-ray and of the ear, nose and throat departments were available. Elsewhere special facilities should be provided to make the way easy for the individual practitioner to fulfil his duty to his patients and to the community.

DR. E. S. MORRIS, Chief Health Officer of Tasmania, referred to the evidence of the association between tuberculosis and overcrowding. There was no doubt that this disease arose from causes operating in Australia and that the importation of tuberculosis was a negligible factor. It appeared that the intestinal route of infection by means of food stuffs was of relatively minor importance. He expressed surprise that while Dr. Ferguson had failed to find any milk containing tubercle bacilli on the market in Sydney, Dr. Penfold had found tuberculosis in 16.83% of dairy cattle, while between 4% and 10% of the animals killed at the abattoirs had been found to be tuberculous. Again, Dr. Harvey Sutton had produced evidence to show that tuberculosis was very limited among school children and yet a relatively high proportion of these children reacted to the von Pirquet test. Dr. S. A. Smith had shown that among the mining population of Broken Hill "dusted" persons were twenty-three times as susceptible to tuberculosis as those who were not "dusted." On the other hand the incidence of tuberculosis among persons with pneumoconiosis who lived in rural districts, was slight, but when these people lived in centres with dense populations, the incidence was thirteen times greater. After having gathered other pieces of evidence he stated that there seemed to be cause to assume that the infective individual was even more important than overcrowding and other housing conditions. The person with an infectious disease was usually regarded as the propagating centre. This should be applied to tuberculosis as well as to other diseases. He recognized that the information concerning the aetiological factors was incomplete and demanded amplification in many directions. He found that improved sanitation had produced beneficial results and should be continued. This method of attacking the problem, however, was very slow. To attack the disease by curing persons with it in an early stage was the second

method. This meant the employment of the sanatorium and of the dispensary. The third proposal was the segregation or other adequate control of the person with advanced disease. Dr. Morris said that he was not clear whether notification as a means to an end had been condemned or merely notification which was followed by action that harassed the patient. He held that compulsory segregation, except in the rarest circumstances, should be avoided. It was useless unless financial help could be given to the dependants of the patient. This was very important. Dr. Morris pointed out that here again it was evident that public health was purchasable at a price. The fourth proposal was to control the disease by immunizing the population. There was not sufficient evidence available to justify any expression of opinion in this connexion. The fifth suggestion was the eradication of bovine tuberculosis. The evidence was scanty and it was still impossible to say whether the bovine or the human bacilli were the most important as sources of infection.

Dr. J. H. L. CUMPTON, Director-General of Health of the Commonwealth, pointed out that it was exactly forty years since Sir Harry Allen, as member of the Departmental Committee on Meat Control, had urged the adoption of certain standards of meat inspection and meat control which had become the basis of the act. That measure had remained in operation without material amendment for forty years. Ten years later a Royal Commission had persuaded the Imperial Parliament to pass a measure practically identical with that of Victoria. It thus appeared that Victoria had adopted these measures years before any other country in the world and he wished to emphasize the fact that Sir Harry Allen had been responsible to a very large extent for this pioneering work.

Dr. Cumpston exhibited a model of a graph showing the mortality rates of the various diseases. Tuberculosis appeared as the fourth in order of the killing disease. It was responsible for one-sixteenth of the total number of deaths. The mortality of pulmonary tuberculosis was 53 per 100,000 of population males 63 and females 43. In the course of forty-two years there had been a fall in the death rate from 135 to 53, that was a fall of 55%. This represented the greatest fall that had taken place in any country. There had been a break in the fall from 1917 to 1921. In Great Britain this break had been even more apparent. There was evidence to show that this break was a direct result of war conditions. In regard to "other forms of tuberculosis" the maximum mortality rates were from 45 to 49 in males and 25 to 29 in females. The highest incidence was among infants in the first five years of life. Dr. Cumpston pointed out that there was no statistical evidence of value in regard to the influence of occupation on the incidence of tuberculosis. The incidence of pulmonary tuberculosis was worst in Bendigo and Adelaide; Hobart and Launceston were worse than Brisbane, Sydney or Perth. The mortality in Launceston had remained stationary for twenty years. In regard to the non-pulmonary forms, the incidence was practically the same in all the capital cities with the exception of Brisbane where it was very low, three per hundred thousand. He had evidence to show that the death rate from pulmonary tuberculosis was considerably less among Australians than among non-Australians living in Australia. While suggestions might be put forward to explain this and other facts, it was obvious that further information was needed before any definite conclusions could be reached. He showed that the conditions were more favourable in Queensland than in Victoria, but it was certain that climate was not operating in producing this result. There were many points that were not clear. There was the significance of age and sex and of occupation on the incidence of the disease and on its mortality. In other directions there was a lack of statistical information. All this should be prevented.

Dr. F. S. HONE (Adelaide) gave a summary of the statistical, pathological, clinical and administrative findings and presented a motion that had been drafted after consultation with the office-bearers of the several Sections concerned. He pointed out that in the past resolutions had been passed at congresses at the final meetings and the

majority of these had remained pious hopes. It had been determined that any resolutions passed at the present Congress should be transmitted to the Federal Committee which was constituted in such a manner that the necessary action could be taken to give effect to the considered opinion of the members. They had felt that it would be little short of a tragedy if the Congress were to terminate without passing any resolution. They were creating traditions. At the Auckland Congress they had discussed a report on syphilis and had made recommendations of an important kind. Sir Harry Allen had taken a prominent part in this work. He did not hesitate to assert that the steps taken had been a direct factor in producing the agitation for the suppression of this disease. The outcome had been the passing of the legislative measures in every State of Australia.

The subject they had been discussing demanded the greatest care and the greatest accuracy in order that the information might be quite complete. They had to deal both with tuberculous infection and active tuberculosis. There was a call for accuracy in regard to the incidence of the disease in both its latent and its active forms. At present it was impossible to obtain this information. They had heard that nothing was known in regard to the influence of occupation on the incidence and mortality of tuberculosis. The difficulty was that there was a great paucity of information. Then in regard to the question of the von Pirquet reactions and the *post mortem* evidence there were the conflicting results that so far had been obtained. Why was it that latent tuberculosis was so widespread among the general population and so low in the hospitals in Melbourne and Adelaide? Why did the people in Sydney respond so freely to the von Pirquet test, while those in Melbourne and Adelaide did not? Why was there so little clinical tuberculosis among school children and yet so many of these children reacted to the von Pirquet test? Why was beautiful and apparently healthy Adelaide the city with the highest tuberculosis mortality? These and many other anomalies had to be explained. It was necessary to recognize that they were only touching the fringe of the subject. They were at the beginning of an extensive coordinated attempt to cope with this disease. More investigation was needed. Tuberculosis and syphilis were the two greatest national diseases and he was satisfied that as chronic infections they required a different method of control to that employed for the acute infections. Both these diseases had wormed their way into the economical and social life of the community and it was imperative that they should be investigated from all points of view. The Prime Minister had announced that he realized the serious nature of these problems and that they had to be faced. He suggested that Congress should put him to the test and see whether he was prepared to translate his words into actions. They should ask him to institute an investigation on a large scale in order that they might know where they stood. He asked Congress to determine that between then and the time of the next Congress they would learn about all the matters still enshrouded in mystery. The practising part of the medical profession must be brought into more intimate contact with the health authorities and must be induced to prevent patients with active tuberculosis from spreading the disease in the community. There was the problem of the linking up of the tuberculosis dispensary, the sanatorium, the hospital and the farm colony. He was satisfied that the problem of tuberculosis was the same as the problem of all other infective diseases. They must attack the disease either at its source or in its transit from the source to the victims. There was some evidence that it was not encouraging to endeavour to attack it by concentrating their attention on the resistance of the individual. He therefore begged to move as follows:

The preliminary inquiries which have been made for presentation to this Congress reveal a large amount of tuberculous infection both in early and in adult human life and an unexpectedly large amount of tuberculosis in dairy cattle, but the evidence available at present does not indicate sufficiently the nature

of the measures which should be adopted for the control of tuberculosis.

In view of this position this Congress, the first Australasian Medical Congress of the British Medical Association, resolves that the Commonwealth be urged to arrange for and put into operation a national investigation into the facts of tuberculosis in Australia, with special reference to the extent of infection in the community, the sources of infection and the relative importance of these sources.

It is also urged on every member of the medical profession the duty by personal effort of joining with the responsible authorities in fighting the disease in every possible way, particularly by attention to early diagnosis and the control of the human infection at its source.

As an aid in bringing this about it reaffirms the resolution of the Australasian Medical Congress, Brisbane, 1920:

That in the interests of public health and of accurate diagnosis it is desirable that laboratories be established at principal centres of extra-metropolitan population throughout the Commonwealth and that a concerted scheme for the whole Commonwealth is the best calculated to give effective results in this respect.

DR. R. GRAHAM BUTLER, official editor of the Medical History of the War, seconded the motion. He hoped that it would be a resolution, not a mere pious hope. In the past very few of the resolutions of Congress got further than being placed among the records. He was sure that the Federal Committee would find means of giving effect to it. He stated that although tuberculosis was declining in its incidence, they should not be satisfied until it had been wiped out like its congener, leprosy. The fate of the leper was almost the same as the fate of the consumptive. The lodging-house keeper refused to have him in his house and often he had no place to lay his head. The wife of the patient was torn by conflicting desires. Her strong wifely duty impelled her to remain with her husband, although she realized that she was running a grave risk of infection. He was not prepared at that time to enter into a discussion of the subject of the infectivity of tuberculosis. It was their duty to let the public know that it was infectious. He hoped that the presence of a considerable amount of tuberculosis in a country would be regarded as a disgrace to that country, just as the presence of leprosy. Much that had been said in the course of their discussion seemed to him to be of no importance to the real problem. After having listened to some of the papers in the Section of Medicine he had felt as if they were white mice in a cage working a dummy tread mill; doing an immense amount of work, but having nothing to show when it was finished. In the Section of Preventive Medicine he had had the impression that the work was inspired along sound lines. It was futile to talk about the treatment with tuberculin and matters of that kind. Prevention was what was needed. They should realize that it was not known how tuberculosis was transmitted; this remained a sealed book. He referred briefly to the work of Calmette and to the hypotheses that had been put up in opposition. No definite knowledge had yet been gained in regard to the mode of infection. If the motion were passed, they would be justified in expecting information on this and other doubtful points. The time would then come when the disgrace attaching to the presence of a large amount of tuberculosis in their midst would be removed.

DR. CAMAC WILKINSON (London) maintained that the von Pirquet test was too sensitive for general application. He used injections of tuberculin for diagnostic purposes and was very satisfied with this method. He claimed that tuberculin given in large doses was not only curative, but by attacking the cause of the disease became a powerful prophylactic agent.

DR. J. W. SPRINGTHORPE (Melbourne) pleaded for the inculcation of the principle of personal health as a means of prevention of tuberculosis. He asked the meeting to add to the motion a paragraph to the effect that the

question of the teaching of adequate personal health should be brought to the notice of the Federal Committee.

DR. SINCLAIR GILLIES (Sydney) supported the motion in principle, but wished that special reference could be placed on the establishment of the tuberculosis dispensary as the most important factor in the prevention of tuberculosis. The dispensary nurse was able to bring the teaching into the patient's home. Since this movement was one of the biggest factors in prevention, he wished it to be specifically mentioned in the motion.

DR. W. KENT HUGHES (Melbourne) referred to the work that had been done in Melbourne by the Milk Commission. They had achieved a great deal in safeguarding the public from the danger of tuberculous milk. There was one thing that they could do in prophylaxis. The difficulties in connexion with a pure and safe milk supply were largely financial. The owners of dairies were prepared to help. They now had a bill before the Victorian Parliament dealing with the compensation of owners of cattle that had to be destroyed on account of pleuro-pneumonia. They were not directly interested in pleuro-pneumonia, but the question of compensation for loss arising from the destruction of tuberculous cattle was a matter of great importance to the medical profession.

DR. HARVEY SUTTON, Principal Medical Officer of the Department of Public Instruction of New South Wales, said that it was the duty of the school medical officer to lay down good health in the child for the future welfare of the community. The health of the children received their attention. He pointed out that manifest tuberculosis was rare among children. The experience of the general practitioner had confirmed their own. Teaching of hygiene had been introduced into the schools, but too little time was being devoted to it. In speaking of the milk supply, he stated that in Sydney unsatisfactory milk was common. This was very important to children and infants. Pure milk was not always available and was always expensive. It was not often realized that Friday's milk was at times delivered on Sunday morning. A pure milk supply was of prime importance.

DR. F. GUY GRIFFITHS (Sydney) said that the story of tuberculosis in Australia was exactly one hundred and fifty-three years old. One of Captain Cook's sailors had died of tuberculosis in 1770. Little had been done to combat the disease, but much had been done that had had a great effect on the mortality. The reduction of the death rate by 55% in forty-two years was a great achievement. There were three points of value which had been known for twenty years and yet were not generally recognized. The first was that there was a scanty amount of bovine infection in human beings. Some authorities claimed that bovine tuberculosis in human beings was an advantage in raising the immunity to the human type of bacilli. He did not agree with this, but the fact remained that the bovine type played but a small part. The second point was that while the sanatorium offered help at best to a few sufferers, the hospital was a much more important instrument of prevention. It was desirable to attract the patient with advanced disease to the hospital. The third point was that effective treatment of persons in the early stage of the disease resulted in the removal of a source of infection. Dr. Griffiths spoke strongly against the application of the von Pirquet test as an indicator of the incidence of infection. There was no standard method of applying the test. He had used it for a time and had found that, provided the directions of von Pirquet, including the use of special instruments, were followed, the results were less reliable. He held that this test should be disregarded and that the subcutaneous injection of tuberculin should be used instead.

DR. RICHARD ARTHUR (Sydney) supported Dr. Springthorpe's contention that great importance should be given to the maintenance of personal health. He referred to the anomalies of the basic wage scheme which provided for the payment for imaginary children. Mr. Piddington's proposals were sound and should be adopted. Dr. Arthur also spoke of the appalling conditions under which the families of persons with advanced consumption were at times compelled to live. He quoted several examples.

Dr. M. A. McINTYRE SINCLAIR (Wentworth Falls) thought that the motion did not go far enough. The public were looking for guidance. With plenty of sunlight, fresh air, good housing and good working conditions the mortality had been reduced and they had the infection in hand. He claimed that while the infectivity had been emphasized, racial immunity had been overlooked. In the general population practically 100% were infected, but only about 5% were clinically affected. Bushnell's observations concerning the Polynesians and the people of central Africa had shown that these people were highly susceptible and that when attacked by tuberculosis they showed little or no resistance. He expressed the opinion that the von Pirquet test revealed the incidence of tuberculosis in the community.

Dr. T. W. SINCLAIR, Chief City Health Officer of Melbourne, supported the motion, but at the same time expressed sympathy with Dr. Sinclair's contention. He referred to the great value that the dispensary system had been in connexion with the Brompton Hospital for Consumption. The system was very complete. He held the opinion that only rich people could afford tuberculin treatment which entailed close daily control of the temperature and clinical condition. He regarded the dispensary as a much more effective and practicable method of controlling the disease. The general practitioner would have to learn to diagnose the disease at an earlier stage before symptoms appeared. In regard to the control of milk he expressed his concurrence in what Dr. Kent Hughes had said, but he maintained that the cost must not be raised. In Chicago the milk of 98% of the cows was pasteurized while that from the remaining 2% was untreated. It was a very high standard to require cows to be subjected to the tuberculin test.

SIR WILLIAM MACEWEN, Professor of Surgery at the Glasgow University, expressed the view that prevention should begin with the control of cattle. The regulations of the Board of Health of Glasgow provided for the exclusion of milk from cows with disease of the udders. But while tuberculous animals discovered at the slaughter house were destroyed, the milk from cows with tuberculosis of internal organs could be sold in the open market, provided that the udders were not affected. Sir William argued that a tuberculous infection could be passed on through the milk, even when the udders were unaffected. He related the case of a cow with tuberculosis without udder lesions whose milk had been given to a sow and her litter. Examination of the young pigs had revealed that the majority had been infected. He thought that it was unreasonable to permit milk from a cow that might be tuberculous, to be sold for human consumption, as the milk was often consumed without previous heating, whereas meat was always cooked or otherwise sterilized before it was eaten. In Germany limited compensation was paid to the owners of tuberculous animals slaughtered at the abattoirs. The meat was carefully sterilized and was sold at a low cost. It was quite safe. It was usually said that no State could stand the financial strain of paying compensation to farmers for loss resulting from the destruction of all tuberculous cows. Was it, Sir William asked, cheaper to compensate or to poison the people? The community had to bear the cost of the ravages of tuberculosis.

The motion was put to the meeting and was carried.

## SECTION II.—SURGERY.

Dr. GORDON CRAIG, President of the Surgical Section, after cordially welcoming Sir William Macewen and other visitors, delivered his address entitled "Urology as Applied to Children." He said that before the establishment of the Department of Urology at the Royal Alexandra Hospital in Sydney four years previously there had been few opportunities for studying urology in children. Young children, even infants, were subject to the same urinary diseases as adults. Many such diseases were common in children, especially chronic bacillary infection and his remarks would concern mainly these conditions.

Dr. Craig then gave a summary of the history of the cystoscope and followed this with a description of the technique of lavage of the renal pelvis in children. A general anæsthetic was always used, usually ethyl chloride followed by ether. The position of the child and the arrangement of towels was illustrated by lantern slides. Solutions of silver nitrate were used; the strength and quantity varied with the age of the patient. The quantity used was two cubic centimetres for a child of two years up to five cubic centimetres for a child of ten years. The strength was 0.5% up to 2% when there was gross infection. The relative size of cystoscopes and sounds was shown on lantern slides. In the course of one hundred and fifty examinations no event had occurred which had given rise to anxiety and the whole examination and treatment had been carried out as safely as in the adult. No child had been subjected to this procedure before two months of medical treatment with vaccines, alkalies and "Hexamine." Many acute infections had been cured, but some had become chronic. It was the patient with chronic infection who came to the urological department for treatment. Silver nitrate was used as the sole therapeutic agent to make the experiment as pure as possible. No drugs were given orally.

Dr. Craig discussed the action of the silver nitrate. He thought that in strengths of 0.5% to 1% the antiseptic would be of little action, as the nitrate would be converted into chloride. It had, however, been shown experimentally in dogs that a reaction took place in the form of desquamation of the epithelium and small celled infiltration of the submucous tissues. The action of the silver nitrate was, therefore, indirect rather than direct. The standard of cure consisted in the complete absence of pus cells and organisms from the urine. Cultures were made at intervals and the colonies counted to note the progress. The cure was not considered complete until the fluid proved sterile. Excellent lantern slides were shown of cultures showing the decrease in colonies as the cure progressed. Of the thirteen patients treated by pelvic lavage nine had been cured, one relieved, two had remained unrelieved and one had died. Then followed details of some of the cases treated illustrated by cystograms and pyelograms. Dr. Craig believed that obstruction of the ureter in children was more common than was generally recognized. There were two conclusions to be drawn from this study. In the first place the majority of chronic bacillary infections of the urinary tract could be relieved and some cured by lavage of the ureteric pelvis with solutions of silver nitrate. In the second place if failure occurred, some superadded organic lesions should be suspected.

Dr. Craig then briefly referred to a series of interesting lesions of the urinary tract in children illustrated by cystograms, pyelograms and lantern slides of pathological specimens. He also described the method used by him in performing nephro-ureterectomy.

Dr. H. S. NEWLAND (Adelaide) said he had seen Pawlak, of Prague, pass a metal ureteral catheter up the right ureter of a female without the aid of sight. He could only refer to one case of chronic urinary infection in a child in his own experience. It was that of a little girl with pyuria due to *Bacillus coli communis* which had resisted ordinary treatment. Cystoscopic examination had revealed great dilatation of the left ureteral orifice. It was obvious that no local treatment could cure the condition. The kidney and ureter had therefore been excised.

In some of Dr. Gordon Craig's lantern slides strictures of the ureter had been illustrated, but he thought that in some of these the strictures were relative rather than actual.

Dr. R. M. DOWNES (Melbourne) said that Dr. Craig had shown that a form of treatment which was valueless in adults, was quite efficacious in children. *Bacillus coli communis pyelitis* formed a large majority of the surgical diseases of the urinary organs in children. As a rule the diagnosis was easy when it was sought. When pyelitis was at the root of the clinical picture, the urine examination was usually conclusive. Dr. Downes regarded the direct vision cystoscope, especially Wolff's, as the most suitable

for general use. In the majority of cases of *Bacillus coli communis* pyelitis, little was learnt by cystoscopy beyond the elimination of other pathological conditions. In rare cases only was there a widespread appearance of inflammation. Regarding treatment, cure often followed full doses of potassium citrate; vaccines had little value. Urinary calculi were not common in children. Then patients had been treated in the last three years at the Children's Hospital, Melbourne, for stones in the urinary tract. Oxaluria which was not uncommon in children, was sometimes accompanied by much more severe pain than was encountered when renal calculus was present and when associated with hæmaturia it was impossible to rule out calculus without an X-ray examination.

Circumcision had been carried out in children suffering from urinary calculi. In his opinion, this was an operation which had been much overdone.

Tuberculosis of the kidney was not seen frequently. Its course was usually rapid. The bladder was considerably affected in every patient. In one in whom the left kidney had obviously been affected and the right had not definitely been shown to be sound by ureteral catheterization, the diseased kidney had been removed with satisfactory results.

DR. GORDON CRAIG in responding to Dr. Newland said that it had been shown experimentally that infection of the ureteral pelvis did not occur unless the ureter was slightly obstructed. In response to Dr. Downes he said that comparatively large ureteral catheters could be used in children.

SIR WILLIAM MACEWEN (Glasgow) delivered an address.

#### Prostatectomy.

MR. BASIL KILVINGTON (Melbourne) read a paper on the after-treatment, complications and end-results of prostatectomy. He said that he preferred to do suprapubic prostatectomy in one stage, unless there were strong indications for a two-stage operation. For anaesthesia he used intraspinal injections of "Novocain" in 1% solution. Occasionally light general anaesthesia was used as well. With regard to complications hæmorrhage either immediate or delayed was the most troublesome. For immediate hæmorrhage he packed the prostatic pouch with gauze which was removed in twenty-four or thirty-six hours. For delayed hæmorrhage he washed out the clots with saline solution and then instilled 3.5 mls of adrenalin. If the hæmorrhage persisted, an anaesthetic was given and the prostatic pouch was packed with gauze. Local sepsis in the prostatic pouch was a great danger and might spread to the kidneys or the epididymis. If the prostate was of the small hard type, sufficient of it was removed to make a funnel-like track. At the close of the operation he inserted a large rubber tube to which he attached a Paul's tube leading to a vessel. The tube was removed in five days. The bladder was irrigated twice daily. He preferred to keep the wound open for three weeks. The mortality was much higher among patients in hospitals than among private patients. Recurrence of symptoms should cause the surgeon to suspect the formation of a phosphatic stone.

DR. S. HARRY HARRIS (Sydney) read a paper on the factor of safety in prostatectomy and a review of recent operative results. During the past ten years he had performed prostatectomy two hundred and fifty-three times with ten deaths, but he confined his remarks to the sixty-five operations performed in the past eighteen months, during which one death had occurred. A résumé was given of the principal symptoms and complications and the results of treatment. A very detailed account of the operation as carried out by himself was illustrated by lantern slides. The glass drainage tube used and special instruments were also exhibited.

After operation saline solution was injected into the bowel, the scrotum was supported and one centigramme of morphine given hypodermically. The tubes were removed on the sixth day and the patient was allowed to get up on the tenth day. "Hexamine" and sodium benzoate were given by mouth.

DR. R. J. SILVERTON (Sydney) read a paper on renal insufficiency and its importance in genito-urinary surgery. In estimating total renal efficiency the routine tests used were the phenol-sulphone-phthalein and the urea concentration tests. These were both convenient and reliable and acted as a check on each other. Occasionally the blood urea test was used. He used the phenol-phthalein test for estimating the efficiency of each kidney. This was the best dye test, but it possessed several manipulative disadvantages, so that not infrequently the results were vitiated. The indigo-carmin test was a more practical one and the urea concentration test was used as a check with advantage.

DR. F. H. LANGLANDS (Melbourne) recounted his results at the Melbourne Hospital with the assistance of Mr. Hailles. In the past eight years, three hundred and seventy patients had been admitted; there had been a mortality of 30%; two hundred and fifty eight patients had had complete retention when admitted. One hundred and twenty-seven patients had been subjected to a one-stage operation. There had been thirty-two deaths or a mortality of 25%. In sixty-three patients a two-stage operation had been performed with fifteen deaths or a mortality of 24%. Thirty-six patients had been submitted to suprapubic cystotomy twenty-nine had died, yielding a mortality of 80%. The patients on whom no operation had been carried out, totalled one hundred and forty-four, of whom thirty-four had died, yielding a mortality of 24%. Dr. Langlands then referred to the causes of death and complications. At the Melbourne Hospital they had only lately started to use the blood urea and urea concentration tests.

DR. BRONTE SMEATON (Adelaide) referred to the probable existence of carcinoma and its influence on treatment. If a malignant prostatic growth were capable of removal, long relief, even up to three years, might follow. For renal efficiency test he relied upon blood urea estimation and the specific gravity of a twenty-four hour specimen of urine. For each kidney he used the urea concentration test. The amount of residual urine, the frequency of micturition and the size of the prostate did not correspond with the degree of renal disease. Great dilatation of the bladder might occur in urethral stricture without damage to the kidneys. There must be some other factor at work for great dilatation of the bladder; he believed in gradual relief extending over a period of five days.

MR. JULIAN SMITH (Melbourne) said Dr. Harris had given small prominence to sepsis which was a difficult problem. The indwelling catheter might not be tolerated and suprapubic cystotomy would have to be performed. He emphasized the necessity of good nursing and thought that the situation should be very carefully explained to the patient. With regard to hæmorrhage he had tried Thompson Walker's method of preventing its occurrence, but had found it a gymnastic performance. If hæmorrhage should occur, he preferred to give morphine lactate and "Hæmostatic serum" and, if necessary, he poured adrenalin freely into the bladder. For severe late hæmorrhage he had used transfusion.

MR. BALCOMBE QUICK (Melbourne) referred to the necessity of performing the two-stage operation in certain circumstances. He feared sudden decompression. He had experienced difficulty with the indwelling catheter and thought that the urethra must be more tolerant in Sydney than in Melbourne. He showed that the amount of residual urine was not a definite indication of the condition of the kidneys when fluid was given in abundant quantities. He did not operate while the phenol-sulphone-phthalein excretion was still rising. He believed in local anaesthesia for the first stage and spinal anaesthesia for the second stage. Of post-operative complications he thought that the tent formation of Thompson Walker and stone formation were the most troublesome. The first could be avoided by thorough technique and the second by lavage.

DR. L. M. MCKILLOP (Brisbane) thought that the percentage of malignant tumours of the prostate would, if all were examined, be above fifteen, as stated by the

surgeons of the Mayo Clinic. A malignant prostatic tumour might be smaller than the normal gland; fixation was early; pain on micturition might be an early sign of malignant infiltration. He referred to the differentiation of malignant disease from tuberculosis and prostatic calculi. He outlined the treatment of enlargement of the prostate as carried out by himself and emphasized the importance of avoiding sepsis and of keeping the urine acid. He believed in opening the bladder freely and securing a good view of the operative field.

MR. H. B. DEVINE (Melbourne) spoke highly of genito-urinary work in Sydney and thought that the results obtained were due to attention to the preliminary treatment. He described the method of drainage used by himself for the past five or six years which had greatly improved his results. The bladder was kept empty by suction; irrigation was not required. He had had some late hæmorrhage; this fact might be due to mild sepsis or to the continuous drainage. He did not allow the bladder to close before three weeks. He had seen many patients after operation with unsatisfactory function and believed that this was due to faulty technique.

DR. STEWART MCKAY (Sydney) said that some years before he had tried closure of the bladder with retention of a No. 6 catheter in the urethra. The catheter had been expelled after ten days and then suprapubic leakage had occurred. He had given up this method when Dr. Harris had described his operation. He thought that post-operative hæmorrhage was due to irrigation and the use of suction.

DR. HARRIS in reply to Dr. Kilvington said that he rarely found it necessary to use a plug for secondary hæmorrhage; irrigation to remove the clots and a drainage tube usually sufficed. For the small hard prostates he used the Young's punch or removed a wedge through a suprapubic opening. He could recognize no argument in favour of keeping the bladder open for three weeks as practised by Mr. Kilvington and Mr. Devine. The figures submitted by Mr. Langlands were commentary on the way old men with prostatic disease were neglected and were a strong argument in favour of the early operation.

In reply to Mr. Julian Smith he said that there were few patients with sepsis who could not be improved sufficiently to tolerate an operation. Dr. Harris insisted that his hospital patients should have the same preparation as his private patients. He said that sensitiveness of the urethra could be overcome if small and suitable catheters were used. He preferred the No. 6 gum elastic Coudé with the eye just inside the bladder. He had given up local anæsthesia, because he had had difficulty in placing the tube in the uppermost part of the bladder. No patients should leave the hospital while the urine contained pus. If pus were present after sixteen or eighteen days, the bladder should be irrigated with plain water, followed by instillation of from ninety to one hundred and twenty cubic centimetres of a 1% silver nitrate solution and retained for four hours. Dr. Harris insisted on careful irrigation of the urethra with a 0.2% solution of oxy-cyanide of mercury before catheterization. He did not believe that pathological examination of all prostates removed was necessary. He doubted whether the malignant process ever started in a simple adenoma of the prostate.

DR. SILVERTON in reply said that the blood urea and urea concentration tests should be carried out before breakfast; renal efficiency did not correspond to the amount of residual urine. The choice of anæsthetic depended more on the state of heart and lungs than on the kidneys. He mentioned low spinal anæsthesia and nerve blocking as a method of value.

MR. BASIL KILVINGTON in reply said that Dr. Langland's figures showed the results were worse than he imagined. Sacculi of the bladder was a very troublesome complication in enlargement of the prostate. The two last deaths in his series had been due to persistent septic sacculi. He thought that Mr. Devine's apparatus encouraged hæmorrhage. He pointed out to Dr. Harris that he removed the drainage tube from the bladder after a week, but kept the wound open for three weeks by washing out

the bladder by means of a catheter passed *per urethram*.

The PRESIDENT in closing the discussion congratulated Dr. Langlands on his frankness. Success in prostatic surgery was due not to the operation alone, but to the selection of patients and to careful pre-operative and post-operative treatment.

#### The Diagnosis of Hydatid Disease.

DR. H. R. DEW (Melbourne) first defined the immune reactions in hydatid disease used in diagnosis. These were complement deviation, precipitin reaction and the Casoni test. Complement deviation was carried out in the same way as in the Wassermann test and the test proved absolutely specific. He then dealt with the factors modifying the reaction and divided the cases into two groups, pre-operative and post-operative. In the first group 81% of the patients yielded reaction. Patients whose serum failed to react, were those in whom the hydatid cyst was degenerated or fibrotic. When the patient was a child no reaction was obtained and when the hydatid was situated in the lung or in the muscle, bone and so on. In the post-operative group and when the cyst had ruptured the amount of complement rose after a short phase of a normal complement level. In cured patients the serum lost its power to react, but twelve months might elapse before this result was reached.

The persistence of the power to react after twelve months was proof of the development of another cyst. The results of the investigations of the complement deviation reaction were well illustrated by graphs.

Dr. Dew then outlined the work done with the precipitin test and compared the results by means of graphs with those the complement deviation test.

The technique of the Casoni cutaneous test and reaction which followed, were carefully described. He pointed out that the reaction was of the triphasic nature. It was only of value in the pre-operative cases, but if a reaction was obtained after operation, it might indicate that the patient had been cured. In conclusion Dr. Dew said that the complement fixation test was the most reliable diagnostic agent and led to reactions in over 80% of all patients with hydatid cysts. The precipitin test was not so delicate and was not quantitative. The Casoni test was very sensitive and was valuable in detecting uncomplicated cysts before operation.

DR. W. J. STEWART MCKAY read a paper on the use and abuse of the drainage tube in treating hydatid cysts of the liver, abdomen and lung. He held that the Lindemann-Lawson Tait operation in which the drainage tube was used in hydatid disease of the liver, should be abolished and should only be used in exceptional cases of suppuration, that the operation introduced by Knowsley Thornton was the proper operation to be used. The operations introduced by Mr. Hamilton Russell and Mr. Kilvington had nothing to recommend them. In hydatid disease of the lung, however, the drainage tube was necessary. The paper was illustrated by skiagrams, photographs and diagrams.

MR. B. T. ZWAR (Melbourne) read a paper entitled: "Surgical Experiences in the Treatment of Hydatid Disease." He dealt with the evolution of the surgical treatment of hydatid disease in Australia and newer methods of treatment, particularly those methods in which drainage was not used. He submitted statistical tables showing the differences in mortality rates and in the periods of convalescence. The figures in both instances were greatly in favour of treatment without drainage, provided that drainage was possible. Mr. Zwar then enumerated the factors bearing on the selection of the particular method of treatment used.

DR. A. A. LENDON (Adelaide) submitted a paper which was read by the President of the Section. He outlined the history of a boy who had sustained a fracture of both bones of the leg, due to hydatid disease of the tibia. Several explorations had been necessary before the disease was extirpated, but the ultimate functional result was perfect.

MR. R. HAMILTON-RUSSELL (Melbourne) said he had long discarded the operation which Dr. McKay had mentioned. He compared Nature's method of healing the hydatid cyst with that which he was using. This method consisted in filling the adventitia with salt solution and closing it securely with sutures. If a bile duct communicated with the cyst, the bile escaped until the pressure in the cyst was equal to the pressure in the bile ducts. He then outlined two cases of suppurating hydatid casts of the liver, the results of treatment of which supported this contention.

MR. D. MURRAY MORTON (Melbourne) said that he had first used drainage, but that many patients had had sinuses for months or years. Twelve years ago he had described the method of suture and dropping back on the liver. He regarded it as a real danger to treat hydatid disease of the liver with "Formalin" injection. Cysts related to the bowel were not suitable for the non-drainage method of treatment. Mr. Murray Morton made an appeal for the publication of a comprehensive work by Australian surgeons on hydatid disease.

MR. BASIL KILVINGTON gave an outline of his method of "Formalin" injection and the rationale thereof. He said it had been shown that the adventitia had very poor absorptive properties. He had left as much as three hundred and sixty cubic centimetres of a 10% dilution of "Formalin" in the cysts after evacuation, but thirty cubic centimetres was the usual quantity. Of the three deaths which had occurred and the records of which appeared in Dr. Zwar's table, one was due to formaldehyde poisoning. If it was proved that formaldehyde increased the danger, then he would reconsider his position. "Formalin" was used to destroy hydatid remnants, because it was often impossible to be sure of complete evacuation. In suppurating hydatid cysts of the liver, "Formalin" was also used, but in such cases he thought it advisable to provide for drainage down to the sutured cyst wall.

SIR WILLIAM MACEWEN expressed thanks for all that he had seen in regard to hydatid disease in Sydney and Melbourne. Previous to coming to Australia he had seen but twelve cases. He said that he scarcely ever used the drainage tube in any of his surgical work. He had operated on hydatid cysts on three occasions and in each case had packed the cavity first with plain gauze and then with iodoform gauze.

DR. GORDON CRAIG said that there did not appear to be much real difference in the methods of treatment described. The Knowsley-Thornton method possessed the advantages, but avoided the risks of the other methods. He said that he had learnt much from the papers submitted. Dr. Dew's paper was a great step forward in diagnostic methods.

#### Spastic Paralysis.

DR. N. D. ROYLE (Sydney) introduced a new operative procedure in the treatment of spastic paralysis. The basis of the new treatment depended upon experimental work upon the sympathetic supply of voluntary muscles which he had carried out with the help of Professor Hunter in the Department of Anatomy at the University of Sydney. He reviewed the experimental work that had been previously carried out in connexion with the function of the sympathetic supply of voluntary muscles and quoted Adrian's review in which he claimed that the only reason for believing that the sympathetic nerves had any function was the fact that they existed. His own experiments had been conducted upon normal animals, upon spinal animals and upon decerebrate animals. In each instance the removal of the left abdominal sympathetic trunk had produced a characteristic result. In all experiments there had been a depression of reflex activity and a loss of power to maintain a posture. In decerebrate animals decerebrate rigidity was not evident in the left lower limb, though all other limbs were affected. The results had been so consistent that he considered an attempt to relieve the rigidity of spastic paralysis in the human subject was justifiable. After consultation with Professor Hunter he had planned and carried out an operation to divide the *rami communicantes* to the lumbo-sacral plexus in a patient

suffering from spastic hemiplegia occasioned seven years previously from a gun shot wound of the cerebral cortex. The results of the operative procedure had been: (i.) Great diminution of rigidity and reflex activity in the right lower limb leading to a restoration of balance, (ii.) immediate and progressive gain in control of the right lower limb, (iii.) vaso-motor changes which were characterized by a capillary dilatation only of transient nature. There had been no wasting or loss of power.

He said that a second patient with a useless upper limb had been subjected to a similar operation. The grey *rami communicantes* to the brachial plexus had been divided and had resulted in changes similar to those described above.

#### Postural Tonus.

PROFESSOR J. I. HUNTER (Sydney) pointed out that the work of the last twelve years had shown that the voluntary musculature received a double innervation, namely from the somatic nervous system and from the sympathetic (thoraco-lumbar) outflow. He believed that the experiments and human operations of Dr. Royle described in the paper just presented showed beyond doubt for the first time that the function of the sympathetic nerves to voluntary muscle concerned the maintenance of tone. Further analysis of the experimental results showed that the particular defect produced by removal of the sympathetic influence was some disability in respect to maintaining a position once assumed. In otherwise normal animals the effort against passive movement was less effective in the operated side, the limb on this side falling into an abducted or flexed position, while the normal limb still remained extended, the animal being tested while on its back. In spinal animals the action of gravity produced a less evident flexion posture than on the side on which the sympathetic was intact. In decerebrate rigidity the extended position of a limb deprived of its sympathetic supply could be assumed, but it was only temporarily maintained. The plastic tonus of Sherrington was absent. It seemed from this work, therefore, that the sympathetic innervation subserved the function of plastic tonus. Since it disappeared altogether on section of the posterior nerve root, it was a proprioceptive reflex mechanism. In higher animals especially a prespinal reflex arc was superposed upon the spinal sympathetic reflex arc as plastic tonus was only feebly shown when the cord was transected. *Corpus striatum* lesions with one exception lead to a muscular rigidity resembling a condition of increased plastic tonus. This fact, together with the morphological work by Ariëns Kapper (1922), suggested that the *corpus striatum* was a higher controlling centre of the prespinal mechanism. The tendon jerks remained after loss of the sympathetic nerve supply. The somatic reflex arc subserved the jerk element in these reflexes and also selectively acted upon muscle groups increasing their tone (contractile tonus of Longelaan). This led to the assumption of a given posture reflexly, for example, the extension of the lower extremity in man. The sympathetic arc maintained this position by acting on both flexor and extensors equally (plastic tonus). In addition to this action on voluntary muscles the sympathetic outflow had a postural influence on blood vessels including capillaries (Sherrington and Krogh).

Sherrington had applied the same principle to hollow viscera. For example, the sympathetic outflow tended to maintain a relaxed condition of the rectal wall with contraction of the anal sphincter to maintain a posture enabling the contents to be accommodated. Experimental results of removal of the hypogastric plexus following complete transverse lesions of the cord were described. The final result was to indicate that a general important influence of the sympathetic nervous system was the maintenance of posture.

#### Exophthalmic Goitre.

DR. M. O'GORMAN HUGHES (Sydney) read a paper on the technique and results of operation for exophthalmic goitre and gave details of the operation as carried out by himself. He preferred lobectomy to the subtotal thyroidectomy as advocated by Mayo, Crile and Hertzler.

He claimed that the immediate results of lobectomy were excellent and if the operation were to include the second lobe, as much gland tissue might be taken as by a subtotal thyroidectomy. He preferred to perform the operation in stages. On the only occasion in which he had removed more than one lobe at one operation, the result had been fatal. He left the capsule which covered the posterior surface of the thyroid gland, thus avoiding injury to the parathyroids and recurrent laryngeal nerve. He had performed thyroidectomy one hundred and three times in this series with immediate mortalities of three and mortality from other sources was also 3%. There were ninety-three first operations and ten second operations thirty-one remained well after the first operation and nine remained well after the second operation. In three cases local anaesthesia had been employed and in the remainder ether had been administered by the open method. Morphine and atropine had been administered hypodermically three-quarters of an hour before operation. All the fatal results had been in patients with a long history and had been after first operations. Of the thirty-one patients who had remained well after the first operation, ten had been operated on less than two years and of the remaining twenty-one nineteen had given a history of six months' duration or less. He had warned the patient that one operation might not be sufficient and in his experience there was little risk in a second operation should it be necessary.

DR. H. C. TRUMBLE (Melbourne) read a paper on the effects of treatment in hyperthyroidism controlled by observations on the basal metabolic rate. His results were based on the treatment of seventeen cases during the past two years and included patients suffering from true exophthalmic goitre and toxic oedema. He gave an outline of the distinguishing characters of this type and according to the type of treatment followed divided them into four groups. Those treated intermittently in the out-patients' department showed no improvement. Patients treated by prolonged rest were not cured, but their symptoms were ameliorated. In the group treated by X-ray applications some were much benefited, but others were little improved. In the fourth group which comprised those treated surgically, the best results were obtained. The removal of one lobe always resulted in an improvement, but the removal of two-thirds or five-sixths of the gland gave the best results. The latter method of treatment offered the best chance of permanent cure.

DR. C. H. C. SEARBY (Melbourne) read a paper on the relation of the recurrent laryngeal nerve in the operation on thyroidectomy. He described the varying relations of the recurrent laryngeal nerve to the inferior thyroid artery, as found in the examination of twenty-four dissecting room subjects and classified the results under three headings. Firstly there were those in which the nerve was in anterior relation to the third part of the artery; secondly there were those in which the nerve was in anterior relation to the first part of the artery or in medial relation to the second part of the artery; thirdly there were those in which the nerve was in posterior relation to the first part of the artery or in medial relation to the second part of the artery. He indicated the importance of these observations in surgery of the thyroid gland.

DR. FRANK L. DAVIES (Melbourne) read a paper on general anaesthesia in patients suffering from exophthalmic goitre. He said that he had discarded the use of morphine and atropine before operating as this was of no help to the anaesthetist nor of benefit to the patient. He held that any patient could be safely anaesthetized with ether in any operation. Two factors of danger were the condition of the heart and pressure on the trachea. Either by the intratracheal method was given when pressure was present and only then. One of the most difficult things to decide was the ability of the patient to go through the operation. Then followed an enumeration of the factors which decided the surgeon to terminate the operation. He believed in light anaesthesia and it was for this reason that the intratracheal method was not used as a routine.

MR. H. B. DEVINE described his own practice and said that the technique varied with the condition.

He divided the patient into four groups: (i.) patients with the fulminating type in which two to four operations might be required; (ii.) those with acute hyperthyroidism or dysthyroidism, which could often be managed by a one-stage and sometimes a two-stage operation; (iii.) those suffering from toxic adenoma which presented no difficulties in treatment and (iv.) those affected by chronic exophthalmic goitre in whom the symptoms had been present over long periods and in whom visceral degenerative changes introduced a dangerous element. He said that the preparation and selection of cases was half the battle and that the estimation of the basal metabolic rate could not alone be relied upon. He emphasized the importance of local anaesthesia. No patient would die when local anaesthesia was used, but all patients would not submit to it. Local anaesthesia was introduced by gravity and the patient was placed in a semi-sitting posture with the neck extended over a pillow. General anaesthesia, when used, was induced by the insufflation of warm ether vapour, by the intratracheal method when the lobes were large or when there was pressure on the trachea. The anaesthesia was light and the head was fixed to prevent movement. He referred to the problem of staging the operation.

Mr. Devine gave details of his method of operating. After making the usual collar incision, he defined the interval between sterno-mastoid and omohyoid muscles and thus exposed the upper pole of the lobe. The superior thyroid vessels were double clamped and divided and the lobe was then removed from above downwards. It was not necessary to divide any muscles. The tube was brought through a stab wound in the sterno-mastoid muscle and the deep fascia closed with two sutures. If necessary, the opposite lobe could be exposed in the same way and dealt with according to the requirements of the case. The advantages of this method were, firstly, that it avoided hæmorrhage; secondly, that it gave easy access to the main vascular trunks of the thyroid; thirdly, it was just as good for the subtotal operation as for staging; fourthly, that even if a second operation was needed later, the opposite side was still in its virgin state.

Mr. Devine next outlined the evolution of the present lines of treatment. When the two-stage method was used, he adopted local anaesthesia for the first and general anaesthesia for the second with an interval of about ten days. He had seen no good results from X-ray treatment. With regard to accidents after operation he stated that hæmorrhage might cause asphyxia. The nurse was always instructed how to open the wound should this occur. In the second place acute thyroid toxæmia might ensue, the danger of which increased with the amount of gland removed. Among three hundred patients he had had three deaths, these deaths being in patients who had had subtotal thyroidectomies.

DR. H. R. G. POATE (Sydney) presented the statistics of the Royal Prince Alfred Hospital, Sydney, for the past thirteen and a half years. Three hundred and forty-four patients with hyperthyroidism had been admitted and of these one hundred and eighteen had been treated surgically. The death rate of those treated medically, had been 10% and of those treated surgically 16%. The tendency was to treat the patients medically for too long a time. In 1915 thirty patients had been treated, eleven of whom had died in the medical ward and one in the surgical ward. The incidence of disease was higher among the industrial population. The average age was thirty-one years, the youngest fifteen and the oldest forty-nine. All were agreed that patients with toxic adenoma should be operated upon at once. In regard to the preparation for operation, he spoke of the importance of absolute rest beforehand, the administration of much fluid and the feeding up of the patient. The anaesthetic and the time factor had an important bearing on the mortality. Deaths appeared to occur in those patients who had been on the operating table one hour or more. After operation he administered 5% glucose in saline solution *per rectum*, sedatives and cardiac stimulant, if necessary. In regard to causation he referred to possible influence of the sympathetic nervous system.

DR. W. J. STEWART MCKAY thought that many conditions called exophthalmic goitre were not true instances of the disease and that true exophthalmic goitre was not common. His idea was that exophthalmic goitre was a disease of the brain and referred to Professor Hunter's paper in which he had called attention to the possible relationship of the *corpus striatum* to the sympathetic nervous system. In support of this contention he instanced cases of exophthalmic goitre which developed rapidly after shock and severe mental strain. In regard to operation Dr. Stewart McKay did not advocate the subtotal method, but preferred to remove the glands in stages. He said that Crile was not ashamed to have put the patient on the operating table five times in a month. In regard to the pre-operative use of morphine and atropine his views were quite opposed to those of Dr. Davies and Mr. Devine.

MR. JULIAN SMITH (Melbourne) thought that surgical treatment gave the best results. Cures by medical treatment alone were not common and he did not hesitate to recommend surgical treatment after two months. In his experience ligation of the superior thyroid artery had been of no value. With regard to anaesthesia and sedatives his practice coincided with that of Dr. Davies and Mr. Devine.

DR. W. H. FITCHETT (Tasmania) who had suffered from exophthalmic goitre himself, said that medical treatment continued for fourteen years had not led to any improvement. He had then been operated upon and had been better before the stitches had been removed. He had made a complete recovery and had been passed as a "first class life" for insurance. He said that surgical treatment had relieved him in three days of what medical treatment had failed to do in fourteen years.

DR. ARCHIE ASPINALL (Sydney) said that following Sir Alexander MacCormick's practice he had always used a large drainage tube because he had seen small tubes obstructed. He thought that Mr. Devine's operation was difficult for the ordinary surgeon. Operations in Sydney for exophthalmic goitre were not common.

DR. GORDON CRAIG said that the discussion had made it clear that Melbourne had reached a standard in surgery of the thyroid to which Sydney had not yet attained. He believed that the fault rested with the surgeons and not with the physicians and that the surgeons in Melbourne had convinced the physicians that they could cure exophthalmic goitre. Personally he was depending more on Dr. Lidwell's method of using intratracheal anaesthesia. He drew attention to the fact that in true exophthalmic goitre there were waves of intoxication and that if operation were carried out during the ascent, the mortality was great; if it were performed after the crest of the wave was passed, the mortality was reduced.

DR. DAVIES in reply to Dr. McKay said that all the patients in their series with the diagnosis of exophthalmic goitre had been proved to have been suffering from the disease.

MR. DEVINE also in reply to Dr. McKay said that the histories of all his patients were open to inspection and that the total number treated surgically represented only half those with hyperthyroidism who had come under his care.

DR. O'GORMAN HUGHES in reply said that the members appeared to be unanimously in favour of surgical treatment and that Mr. Trumble's paper supported this contention. X-ray treatment seemed to be of no benefit. He believed that morphine and atropine was beneficial before operation. He had seen no benefit from ligation of the superior thyroid vessels.

DR. TRUMBLE in reply to Mr. Devine said that at the Mayo Clinic a two-stage operation was performed if the basal metabolic rate was more than 50% over normal.

#### Empyema.

MR. H. S. NEWLAND read a paper on the surgery of empyema in which he described his experience during the past two years of treatment by evacuation of

the contents of the pleural cavity and primary suture. The operative procedure consisted in resecting seven and a half centimetres of the eighth or ninth rib in the mid-scapular line, evacuating all the contents of the cavity including the fibrinous exudate and then closing the cavity. Before closure a trocar was placed in the lowest part of the cavity through the chest wall to suck out blood and to create a negative pressure. This method had been successful only twice, in all the other patients it had been necessary subsequently to open the chest and to drain the pleura. The results were, therefore, disappointing and the method a failure.

MR. H. DOUGLAS STEPHENS (Melbourne) confined his remarks to empyema in infants and children. Of seven hundred and thirty-six children with pneumonia treated in the Children's Hospital, 60% had developed empyema. The mortality from January, 1921, to June, 1923, among one hundred and sixty-three patients with empyema had been 24.05%. In children under two years of age the mortality had been 51.02%. Mr. Stephens then outlined the factors which determined the time to operate, the site and nature of the operation and the after treatment. An exploring needle was always used and the organism identified before operation. Operations was not performed during the active stage of pneumonia, but aspiration was used to relieve distress, if necessary. Intercostal incision was performed if aspiration failed, but only as a temporary measure. When the patient improved, rib resection was carried out to secure better drainage. Aspiration should not be undertaken more than once or twice. In all other cases rib resection was the operation of choice. Four and a half centimetres of rib were removed in infants and more in older children. The cavity was emptied and adhesions separated. A large rubber drainage tube four centimetres long was inserted and was discarded in from ten to fourteen days. With regard to the site of operation the eighth rib was the most satisfactory.

MR. R. HAMILTON-RUSSELL (Melbourne) said that drainage and nothing but drainage was the principle which must be adhered to. Aspiration was only a subsidiary method of treatment. He always removed eight to ten centimetres of rib and left the wound open. No drainage tube was used and the wound was treated with antiseptic dressings. At first he had only removed sufficient rib to allow the insertion of his finger into the cavity and with his finger as a guide he had resected more rib according to the shape of the cavity.

DR. H. GILBERT (Adelaide) gave an account of his results for nine years at the Children's Hospital in Adelaide. He had performed thirty-nine operations on thirty-six patients, ranging from six months to ten years of age. There were five deaths. At first he had performed rib resection, but later he had carried out only simple incisions which proved satisfactory. A general anaesthetic had been administered to each patient. With regard to the position he had not followed any routine, but had made his incision where the needle revealed the pus. During the after treatment he thought breathing exercises were valuable.

MR. BALCOMBE QUICK (Melbourne) said that physicians were apt to forget the value of radiology when the exploring needle failed to reveal the pus. He referred to the danger of flapping mediastinum when the chest was opened in early cases before adhesions were formed. Later, when adhesions formed, this danger did not occur. He strongly believed in local anaesthesia and said that he had perfect satisfaction even in the youngest child.

DR. L. M. MCKILLIP (Brisbane) said that he always used a large tube and made the opening over the point of greatest dullness.

DR. T. W. HAYWARD (Adelaide) spoke on the value of team work in the treatment of empyema. He referred to the paper read by himself at the Hobart Congress in 1902. His method of treatment followed that outlined by Mr. R. Hamilton Russell, but he used a tube which was taken out in from two to four days.

DR. R. GORDON CRAIG, in closing the discussion, said that it was apparent that the pleural cavity did not have the same capacity for dealing with infection as the

peritoneum and that the pleura needed more efficient drainage than the abdomen.

#### Diseases of the Caecum.

DR. F. A. HADLEY (Perth) read a paper on non-malignant disease of the caecum. He confined his remarks to prolapse of the caecum and the necessity for recognizing this condition as a definite entity, that was as a deformity the same as any other deformity, and not to delay treatment until the secondary changes began. He described the treatment which he had carried out. In early cases an operation was performed which consisted in fixing the caecum and ascending colon to the postero-lateral aspect of the abdominal wall. In advanced cases hemi-colectomy was performed and gave good results.

#### Gastropnoxis.

DR. L. M. McKILLOP (Brisbane) read a paper on gastropnoxis illustrated by lantern slides. He gave a detailed account of the aetiology and symptomatology and described the treatment as carried out by himself. In severe cases operations, such as plication of the lesser omentum and fixation of the stomach to the anterior abdominal wall, were carried out.

#### Arthritis Deformans.

DR. LENNOX G. TEECE (Sydney) read a paper on *arthritis deformans* from the orthopaedic standpoint. He emphasized the importance of rest and protection of the affected joints and the necessity for the prevention and correction of deformity. He said it was obviously of little value to cure the patient from the medical aspect and to leave deformities which inhibited function.

#### The Ileo-Caecal Valve.

DR. A. H. RUTHERFORD (Sydney) read a paper on the structure and functions of the ileo-caecal valve, the object of which was to show that this structure was a sphincter and not a slit as it was described in text-books on anatomy. He gave a detailed account of his observations of the ileo-caecal valve which was exposed to view in a patient with an artificial anus in the caecum. The paper was illustrated with excellent photographs and diagrams.

#### Tropical Bubo.

SURGEON LIEUTENANT-COMMANDER W. J. CARE (Royal Australian Navy) submitted a paper on tropical bubo which was read by SURGEON-CAPTAIN EAMES. The cases described occurred during a cruise of His Majesty's Australian ship *Melbourne* in the West Indies.

### SECTION III.—OBSTETRICS AND GYNÆCOLOGY.

#### Modern Obstetrics.

DR. J. A. CAMERON, the President of the Section, gave an address dealing with every day obstetrics, more especially from a general practitioner's standpoint. He invited discussion in order that the members of the Section might contribute something towards the problem of the maintenance of the ideal and assist obstetricians of the rank and file in improving their midwifery work. The results of hospital work were compared with those of private practitioners in a review of three thousand consecutive confinements personally attended in the patients' own homes with the aid of a very uncertain trained assistant. This work was classified under four headings. They were: maternal mortality and morbidity, maternal disability, foetal mortality and infantile crippling.

Interesting statistics were quoted showing that there had been practically no diminution of the death rate during the last seventy years. One mother in every two hundred died at her confinement and from 3% to 5% of full time infants were stillborn. One abortion or premature birth occurred in every five full time births and 10% of the mothers received some lesion.

The preventive measures to lessen the present maternal and infantile mortality and disability of child-birth necessitated four things from the point of view of the woman. In the first place there was need for better ante-natal instruction and care. In the second place well trained medical assistance was essential. The third requirement was better nursing and after attention, while the last demand was that better conditions should be provided for the woman in labour.

He referred to the maternity scheme now before the Queensland Government, which was the first serious attempt on a large scale in the Commonwealth to attack the problem of improving the maternity results. He pleaded for adequate organization with regard to hospitals, students, doctors, post-graduate courses, fees, help to resident doctors, the registration and inspection of small maternity homes, the supply of well-trained nurses and some extension of the bush nursing scheme. He also advocated improved training for doctors and nurses. In regard to practice he demanded careful supervision during the whole pregnancy and the whole period of labour, with the application of principles of surgical cleanliness and the elimination of hasty work. Lastly he desired to see the establishment of laboratories and all facilities to further research work.

DR. T. G. WILSON (Adelaide) read a paper on surgical conditions resulting from labour. Surgical interference at the time of labour would be prevented if the relative size of the passages to the passenger were more closely investigated in every instance before the onset of labour. X-rays had been suggested as being a great help in this direction. Consideration was given to the state of affairs in which disproportion occurred and the best methods of delivery were discussed. These included the induction of premature labour and Cæsarean section. Mutilating operations should be extremely rare. The great frequency of occipito-posterior positions as a cause for difficulty in parturition was mentioned. The limitation of vaginal and rectal examinations should be practised; the author had practically discarded rectal examination.

Pituitary extract should be used with a considerable degree of circumspection. The relative size and position of the passenger in regard to the passages must be known before it was given especially to primiparae. In regard to forceps the pendulum was swinging back to their restricted use in normal labour. Dr. Wilson was convinced that the use of forceps in unsuitable cases and especially when applied too early was responsible for the frequent occurrence of perineal lacerations and over-stretching of the genital supports. This resulted later on in various degrees of *prolapsus uteri*, *cystocele* and *rectocele* and so on.

Tears of cervix frequently healed spontaneously and unless hæmorrhage occurred, no attempt should be made to suture them at the time of labour. All tears of the perineum should be stitched at the time of labour, preferably before delivery of the placenta, when the field was clear of blood. Rupture of the uterus and concealed accidental hæmorrhage might warrant surgical interference.

Cæsarean section for eclampsia was rarely called for and the outlook for the mother was much better with expectant and eliminative treatment. He had but a limited experience of symphyseotomy and pubiotomy. The surgical procedures necessary in the case of sepsis immediately following confinement were discussed. Prophylaxis was the keynote of the situation. Conservatism in regard to curettage where there was septic absorption was recommended and exploration of the cavity with a gloved finger and swabbing with "Izol" were advocated. He also mentioned facilitation of free drainage, elevation of the bed, hot vaginal douches and small doses of pituitary, ergot and strychnine.

In speaking of retroversion of the uterus as a result of parturition he pointed out that a practice was made of an examination of all patients six weeks after confinement and in the great majority of cases a cure could be effected without surgical interference by postural treatment, the temporary use of pessaries, exercises or any measures tending to keep the uterus forward until involution was complete.

Dr. G. ROTHWELL ADAM (Melbourne) gave three reasons for the obstetrical morbidity. The first was the fact that traumatism did not appear or show itself for months after delivery. The second was the failure of the part of the medical attendants to appreciate the involution period. The third was the tendency to separate obstetrics from gynecology, instead of making them supplementary to each other. He directed attention to two points as common causes of trouble, namely the frequent use of forceps, especially in primiparae and the frequent febrile recovery in the puerperium resulting from some mild infection, but disturbing to the process of involution.

Dr. FOURNESS BARRINGTON (Sydney) supported Dr. Wilson that dystocia was due to a large head just as often as to a small pelvis. He urged the importance of visiting all patients in the last two weeks to examine the size of the head and urged that a prophylactic induction should be performed in elderly primiparae if the time of gestation were prolonged. He also said that no forceps should be applied until the cervix could no longer be felt.

Dr. W. T. CHENHALL (Sydney) advocated that all lacerations of the cervix should be repaired as soon as possible, just as in the case of tears of the perineum.

Dr. J. C. WINDEYER (Sydney) pointed out that a very common degree of pelvic contraction was that of the outlet rather than of the brim. This led to much trauma in women. He also dealt with the importance of diagnosing occipito-posterior positions to prevent the damage.

Dr. R. WORRALL (Sydney) recommended the dorsal position as best for labour and surgical interference and drew attention to an episiotomy as an operation sometimes very useful.

Dr. A. J. GIBSON (Sydney) spoke of the early diagnosis of malpositions and recommended ante-natal methods for their correction. In considering the passenger, they should not overlook the powers and obliquity of the uterus, pendulous abdomen and so on, factors which might prevent the force acting in the right direction.

Dr. FELIX MEYER (Melbourne) advocated the operation of Cæsarean section in cases of *placenta prævia*.

Dr. A. N. MCARTHUR (Melbourne) spoke against the too frequent use of Cæsarean section.

#### Procidentia Uteri.

Dr. F. A. MAGUIRE (Sydney) exhibited a rare and beautiful specimen of a uterus in a condition of complete prolapse. He described the specimen, explained the method of dissection followed in its preparation and compared the pelvic characters with the normal. A summarized account of this important communication would have little value.

Dr. FELIX MEYER read a paper on the differential treatment of the prolapse of the uterus. No operation for the cure of uterine prolapse could be effective that did not correct vaginal prolapses. Each case should be treated according to its own requirements. The actual operations were regarded from two aspects. There were those relating to the child-bearing period when it was desirable to maintain the possibility of pregnancy. There were also those which were applicable to the post-climacteric period. The object of all operations was to restore the uterus to its normal position, to maintain its natural freedom of movement and to repair all injury and strengthen all weaknesses of the pelvic floor. Perineorrhaphy and strengthening of the anal sphincter and anterior colporrhaphy were essential in every case. In second and third degrees of prolapse the repair of the pelvic floor needed to be supplemented by a pull on the round or broad ligaments. Dr. Meyer advocated two methods of dealing with the round ligaments, anterior plication and Gilliam's operation.

In the post-climacteric period the cystocele and rectocele were the most important lesions; hysterectomy should seldom be found necessary. The large swollen protruding organ was due to venous engorgement and with rest and hot douches would diminish in a surprising manner. Interposition operation was not advocated. Of the shorten-

ing of utero-sacral ligaments he had had no experience. Vento-suspension had been practically discarded. Vento-fixation had a useful, if limited, application in old subjects. Gilliam's operation, with modifications and adapted to circumstances, should be retained. Pessary treatment was used when an operation was refused or contra-indicated, but could not be regarded as a curative agent.

#### Abdomino-Pelvic Ptosis.

Dr. W. T. CHENHALL read a paper on the gynecological aspects of abdomino-pelvic ptosis. He described what he termed an "abdominal woman" or one suffering from a chronic abdominal condition. The condition was usually inherited, but might be acquired in many well-developed females. The patient underwent rest cures, was treated by a gynecologist, possibly by curettage or by appendectomy, with only temporary relief. A surgeon might treat her for cholecystitis, gastric or duodenal ulcer or floating kidney and so on. They were not cured. Many women suffered from this condition and exhibited scars of ill-warranted and disappointing surgical interference. A congenital predisposition existed in all these patients and prevention of deformity was essential. After dealing with the symptoms he outlined treatment under the following captions: (i.) Medical, which did not lead to the cure of the condition, but merely to its alleviation; (ii.) surgical, which was unwarranted and many errors were made in vain attempts to cure by elevation and fixation of organs; (iii.) preventive treatment was of the greatest importance; it entailed early recognition, good food, good air and sunshine and exercise. (iv.) The last was the curative treatment by exercises, which Dr. Chenhall described in full detail.

Dr. RALPH WORRALL outlined some of the operations he favoured for the treatment of complete prolapse. He condemned interposition and had discarded it. He attached importance to very thorough work being done on the pelvic floor.

Dr. JOHN T. MURPHY (Melbourne) did not advocate hysterectomy for complete prolapse. He used the uterus as a ligament and attached it to the abdominal wall close to the pubis.

Dr. G. ROTHWELL ADAM asked his audience to bear in mind that the important point in all such repair operations was the restoration of the vaginal canal.

Dr. H. H. SCHLINK (Sydney) wished to hear Dr. Maguire's opinion of the supports of the uterus as well as the pelvic floor. If preventive methods were practised in their work, the need for repairs of third degree prolapse should not occur.

Dr. J. C. ROBERTSON (Sydney) emphasized the necessity of attention to the cervix in performing anterior colporrhaphy; it was essential to push the bladder well back.

Dr. E. R. WHITE (Melbourne) considered that the most difficult case the gynecologist had to deal with was that of a procidentia in a young woman beginning the child-bearing period. He suggested the adoption of Fothergill's method.

Dr. A. N. MCARTHUR favoured the exercises quoted by Dr. Chenhall in his paper for visceroptosis. These cases were usually congenital and the patients manifested the condition in adult life principally through the effects of some toxæmia. In procidentia the utero-sacral ligaments were of paramount importance.

#### Eclampsia.

Dr. J. C. WINDEYER read a paper on the toxæmia of pregnancy with an analysis of one hundred and fifty-eight cases of eclampsia. He congratulated the Congress on choosing such a subject, firstly because it was one of the commonest complications of pregnancy, secondly because it caused 18% to 20% of the maternal mortality in child-birth and this mortality was on the increase and thirdly because it had received very little attention at previous congresses.

In a mild form vomiting of pregnancy was very common and occurred in 50% of pregnant women. It was due to a temporary disturbance of the physiological balance. In

the minority of pregnant women the condition persisted and then came under the heading of *hyperemesis gravidarum*. The treatment of this type of toxæmia by the use of carbo-hydrates during the last few years had yielded very interesting results. The main factors in regard to its ætiology and treatment were the following. There was the metabolic factor: a glycogen deficiency in the maternal liver and carbo-hydrate deprivation caused by the persistent vomiting. The second was the neurotic factor. The third was the intestinal intoxication factor and the last was the factor of dehydration.

Proper ante-natal supervision gave excellent results. The neglected cases with toxæmia fully developed taxed the most experienced physicians.

In albuminuria of pregnancy the response to treatment varied according to cause; this was either a toxic process or chronic nephritis. The former responded to treatment rapidly, while the latter responded slowly if at all.

Accidental hemorrhage in the minds of obstetricians was considered as of toxæmic origin.

A table of statistics had been prepared and was shown consisting of consecutive series of a hundred and fifty-eight patients with eclampsia treated in the Royal Hospital for Women, Sydney, during the period of seven and a half years. The figures illustrated the fact that in primiparæ eclampsia was much more common than in multiparæ and tended to be less severe. The deaths that occurred, represented a mortality rate of 6.96%. These figures also showed that the patient with eclampsia, in whom the fits started before labour were usually at an earlier period of the pregnancy than the patients in whom the fits started during or after labour; that the infantile mortality was greater when the onset of the eclampsia occurred before labour; that prematurity was the main cause of the large infantile mortality in eclampsia; that the blood pressure was raised in practically all patients with eclampsia and that the exceptionally high blood pressures were found in patients with a pre-existing chronic nephritis.

The treatment of eclampsia, as carried out at the Royal Hospital for Women, Sydney, was then outlined and with few alterations a general routine treatment was suggested. The patient was given a high soap and water enema on admission. Three and a half grammes of compound jalap powder were given by the mouth if the patient was able to swallow, but if the patient was unconscious the stomach was washed out and either jalap or magnesium sulphate was run into the stomach before the tube was withdrawn. Hot fomentations were applied to the loins; the patient was kept quiet, the air-way was kept free from vomit and mucus. The patient was placed on her side with her head low. Oxygen was administered after the convulsions occurred. Morphine was largely used, while "Veratrone" was generally used if the fits persisted. Venesection was reserved for patients with persistent cyanosis and failure of the right side of the heart. Saline solution was rarely used.

Cæsarean section had been performed twice; de Ribes's bag had been used five times, craniotomy had been performed twice, forceps had been applied on forty-two occasions and induction had been performed in five patients with *ante partum* eclampsia before the fits had ceased. There had been a gradual decrease in the mortality from eclampsia at the Royal Hospital for Women, Sydney, for many years. This satisfactory decrease seemed to have been due to several factors. In the first place there was improved and practically routine nursing treatment. In the second place a minimum of obstetric interference was permitted. In the third place the fits were controlled by reduction of blood pressure until the bowels were acting well.

Statistics had shown that ante-natal treatment prevented eclampsia in a great majority of pregnant women.

Dr. R. G. SCOTT (Hobart) opened the discussion and called attention to the necessity of looking for some further cause of toxæmic vomiting. While he agreed that it was due to faulty metabolism, he held that the cause of

the pathological lesions which was responsible for the fault, should be sought. He said that the greatest hope lay in prophylaxis and ante-natal treatment. There had been much confusion in the treatment and he supported Dr. Windeyer in maintaining as near as possible a routine plan of treatment. He advocated starvation; only water should be given for three days. Ordinary eliminative measures should be adopted.

Dr. J. LEON JONA (Melbourne) thought that a uniform definition of eclampsia was desirable in order that statistics might be compared. They did not know the toxin, but its incidence on various organs such as the brain, retina, kidneys, liver, pancreas, varied in different individuals in differing degrees. Thus pancreatitis with epigastric sensation was not uncommon. Its predisposing cause might be the desiccation of the tissues. Dr. Jona referred to some experimental work which he had conducted. By keeping animals under conditions in which ingestion of water was limited or by injecting Ringer's solution he had rendered the animal more liable to convulsions on injecting strychnine than a normal animal.

Apparently eclampsia was more serious and more fatal in some women than in others. This was apparently due to climatic conditions. Prophylaxis by insisting that the patient should drink large quantities of water as well as by giving the usual baths, keeping the bowels open *et cetera* could be practised.

Dr. A. W. NANKERVIS (Bendigo) said that proctemic vomiting might sometimes be attributed to other conditions, namely retroversion of the uterus or *Bacillus coli* infection of the genito-urinary tract. Vomiting often ceased if these conditions were treated. In regard to albuminuria he suggested that a good biochemical training would be helpful in the early diagnosis of these cases.

Dr. J. C. GIBSON quoted some of the statistics from the Crown Street Hospital, Sydney, where they had a 10% mortality during the same period as Dr. Windeyer's results had been taken. Their method of treatment was very similar to that at the Royal Hospital for Women, except that they had not adopted "Veratrone." He agreed that a conservative treatment was proper in eclampsia. To prevent deaths caused by œdema of the lung, he would suggest that the patient's head be lowered over the edge of the bed to enable the mucus to escape. In regard to the ætiology he would like to emphasize the part played by focal infection. Other causes to be considered might be placental infarcts or endocrine instability.

Dr. A. N. McARTHUR spoke of the use of intravenous injection of extract of *corpora lutea* in pernicious vomiting with good results.

Dr. C. DUCUID (Adelaide) had seen "Veratrone" used extensively in Glasgow, but understood that after an extensive trial they had almost discarded it. He considered with the introduction of ante-natal treatment the necessity for more thorough and complete radical treatment was a thing of the past. He urged the necessity for more thorough investigation as to the cause of eclampsia and would direct attention to the pancreas being affected in many cases. Occasionally patients treated almost like diabetics had been cured or considerably helped.

Dr. F. BARRINGTON spoke from the clinical standpoint. He considered that the mild forms of vomiting of pregnancy were usually neurotic in origin. The toxic cases were much more difficult to treat; extracts of *corpora lutea* has given good results with deep intramuscular injections in the former type of case, but not in the latter. In all pre-eclamptic conditions he emphasized the importance of rest and diet and urged the doctor to see that it was carried out. The most suitable time for induction of labour in pre-eclampsia not responding to treatment was firstly when the epigastric pain was evident; secondly, when neuro-retinitis had become acute; thirdly if the urine was diminished in amount and was becoming less each day. This was greatly helped by renal efficiency tests. He was a strong believer in "Veratrone" and morphine. He supported Dr. Windeyer in the question of avoiding unnecessary obstetrical interference.

DR. R. FOWLER (Melbourne), speaking of the aetiology, gave some interesting results of original research on the presence of the toxic agent in the *liquor amnii*. The investigations had not led to definite results, but he would suggest that with further help it might be pursued. Though ante-natal care and repeated analysis of the urine were extremely helpful, there were some patients in whom the symptoms set in in a few hours. He would like to point out the value of Caesarean section as a method of treatment in selected types, namely primiparae not in labour. The medical officers at the Women's Hospital were agreed that this treatment was excellent in particular cases. With the routine conservative eliminative treatment the mortality was about 15%. For the operation of Caesarean section in these cases he used spinal anaesthesia and considered that he obtained good results. He also advocated the low operation as having advantages over the classical one on account of less haemorrhage; the scar was well behind the bladder and it was less liable to rupture at a subsequent pregnancy.

DR. E. R. WHITE spoke of the good results in the ante-natal work at the Women's Hospital. No single patient with eclampsia had been sent from the out-patient clinic to the wards in an acute condition. He advocated a starvation treatment, a water diet until there was a rapid reduction of albumin in the urine. The most difficult cases to deal with he considered were those at the period of six months in young women entering the child-bearing period. Labour should be induced early, before permanent damage to organs occurred.

DR. A. WILSON (Melbourne) spoke of the records of the Women's Hospital in the last ten years, during which 16,256 confinements had occurred. Of the patients 362 had fits; that was a frequency of one in forty-five, with an appalling mortality of 22.4%. Though he favoured Caesarean section he generally reserved it for patients threatening to die; he preferred to try the conservative treatment first. He was impressed with the fact that they must teach prophylaxis. The education of the public and of medical men was essential. He found great value in induction of labour before the onset of fits. He advocated the principle of "safety first." With regard to accidental haemorrhage 80% of the patients had albumin in the urine.

DR. WINDEYER in reply stated that all the patients referred to in his report had had fits; those concerning whose condition he was not absolutely certain, had been discharged.

#### Breast Feeding.

DR. MARGARET HARPER (Sydney) in opening a discussion on the establishment and maintenance of lactation said that the requirements for successful lactation were a healthy mother leading a regular normal life and an infant who stimulated the secretion of milk by the regular emptying of the breasts. Although every mother and baby should fulfil these requirements, difficulties arose. Many babies were unnecessarily exposed to the hazards of artificial feeding. Difficulties were almost always due to lack of proper management and handling of the infant, very seldom to a fault in the quality of the milk. The composition of human milk varied within wide limits. No infant should be weaned because the chemical examination of the milk revealed a definite departure from what was considered to be the normal. Overfeeding might result in loss of appetite in the baby, with consequent failure in the milk supply. In overfeeding there was a falling off of the milk supply referable to lack of sufficient stimulation on the part of the infant or to some fault in the mother's régime. The commonest causes of ineffective suckling were the formation of bad habits during the early days of life, slight abnormalities which had escaped notice, such as cleft soft palate or nasal obstruction, lack of appetite which was at times due to too frequent feeding, to some acute infection or unhygienic surroundings, to some reflex irritation and to nervous unrest in the baby. A thorough physical examination of the infant should be made whenever difficulty was experienced.

Dr. Harper described cases illustrating the above conditions and told how the difficulties were successfully over-

come. They recognized the importance of breast feeding in reducing the morbidity and mortality rates among infants, but there was a widespread belief that the modern woman was losing the power to suckle her infant. In order to combat this disastrous attitude, the following measures were necessary. They were (i.) the realization by the medical profession of the supreme value of mother's milk to the infant, of the fact that every mother could suckle her infant entirely or partially and that failure to do so was the result of lack of proper management and education; (ii.) the necessity for the medical supervision of mother and infant during the first twelve months of life and the training of nurses in the principles and practice of good mother craft and infant nurture and especially in the right methods of managing lactation.

DR. TRUBY KING (Wellington) said that in discussing the establishment of lactation they could not go too far back. There was only one fundamental consideration. That was nutrition. All mammals had two appropriate organs for the nutrition of their young, so that twins might be fed. Morgan had stated that lactation was the natural response to stimulation of the breast. A bitch had recently given birth to pups; the mother had died and another bitch which had not borne pups, had taken on the function of suckling.

Dr. King showed a chart illustrating a case of re-establishment of lactation. The methods used were manual stripping of the breasts, massage and hot and cold sponging.

DR. HELEN MAYO (Adelaide) said that she would mention some of the reasons for failure to maintain suckling. No doubt it was biologically possible for every mother to suckle her infant, but economically and socially this was not always possible. In some maternity homes the infant was given condensed milk during the night to keep it quiet. There was not a sufficient number of nurses to attend to the infant properly, who knew the right methods. There were doctors who did not know and did not care. There were vested interests. Nurses employed by certain commercial firms sought to encourage mothers to give up suckling and to use milk preparations or patent foods. Doctors should be taught to know the right methods of managing lactation. Nervous mothers and babies were difficult to manage.

To illustrate the effect of the mental condition on lactation, Dr. Mayo quoted the case of a mother who during the first six months of her infant's life refused all outside work in order to suckle her baby. When it was six months old she weaned it suddenly and plunged straightway into political work. The secretion of milk was arrested immediately. Often tuberculosis was a contra-indication to nursing.

DR. VERA SCANTLEBURY (Melbourne) related the results of some of the work at the baby health centres. She emphasized the importance of the education of all persons involved. They were medical students, student nurses and parents. She laid stress on the importance of ante-natal care in the preparation for lactation.

#### Uterine Tumours.

DR. RALPH WORRALL open the discussion on uterine tumours at a combined meeting of the Sections of Obstetrics and Gynaecology and of Radiology. He spoke from the surgical point of view and mainly from his own experience. He raised the question whether the treatment of uterine fibroids by radiology should not be condemned because of its effects on the ovaries. He had performed three hundred and eighty operations of sub-total hysterectomy with six deaths. The end results had usually been very good. He hoped that it would be recognized that sub-total hysterectomy when the cervix was injured or diseased, was reprehensible. It was the removal of part of the uterus when the whole was diseased. Such an operation would leave the patient exposed to the danger of cancer of the cervix. In cancer of the body of the uterus he had found by his results that the primary mortality rate was small and the prospect of permanent cure fairly good. He mentioned that in total hysterectomy, except for cancer of the body, the ovaries were preserved; consequently menopause symptoms had been entirely absent

or very slight. The end results of hysterectomy for non-malignant conditions with retention of the ovaries were entirely satisfactory. Myomectomy was used in young women desirous of having children. Lately it had acquired a much larger sphere.

He read notes of thirty-nine patients with cancer of the cervix treated by Wertheim's operation with three deaths. The results had lasted from one to thirteen years. No patient had been operated on in the very early stage and no operation had been refused if there seemed to be the slightest chance of success. Those patients who died of the operation, had had a merciful ending and of the survivors, with one exception, none were worse off after the operation than before. He concluded that the treatment of non-malignant neoplasms of the uterus by surgical means was safe and gave satisfactory results. The ovaries should be usually left. For cancer of the body of the uterus complete hysterectomy was still the best treatment. In cancer of the cervix prospects of cure were no better after operation than in any other region. He urged education of the public to apply immediately for all treatment on the appearance of the first unnatural symptom or sign. He did not agree that radiology had any place in the treatment of non-malignant uterine neoplasms, except when grave constitutional disease precluded operation. It did not cure. It was very uncertain, dangerous and even when remedying hæmorrhage, did not leave the patient secure against degeneration or malignant change or even against the recurrence of hæmorrhage. In cancer of the body of the uterus or the cervix radiology was inferior to complete hysterectomy.

DR. L. CLENDINNEN (Melbourne) read a paper on the radiotherapy of uterine tumours. He said that radiation was employed in myomata either to cause the disappearance of the growths by means of the direct action on the cells, or by producing an artificial menopause as a result of irradiation of the ovaries. This treatment widened the scope of conservative surgery. It was indicated for small or medium-sized growths of the interstitial type, when surgery was contra-indicated or as an adjunct to surgery in anæmic patients, especially for the control of hæmorrhage. In malignant disease the best results had been obtained from a combination of radium and X-ray treatment. The biological laws governing irradiation were not thoroughly understood. Dr. Clendinnen dealt with the varying degrees of radio-sensitiveness of normal and of pathological tissues. The rectal and bladder mucosa was very sensitive, while the vaginal mucosa was resistant. Pathological cells were more sensitive than normal cells. It was too early to determine the actual value of radiotherapy in malignant disease of the uterus. Radiologists were treating surgically inoperable cases to a large extent, whereas the surgeons obtained their results from the few specially selected favourable cases. During two and a half years he had treated eighty-eight patients with malignant growths of the uterus. In twenty there had been definite and often advanced recurrences after surgical operation. Ten of the patients had been referred to him soon after operation, chiefly because it had been doubtful whether the growths had been completely removed. The patients had suffered from hæmorrhage that had recurred during many months, advanced spread of disease, anæmia and cachexia. The radiation had had a palliative effect in arresting the bleeding and in lessening the foul discharge. The tumours had been reduced in size and ulceration had healed. He advocated the use of radium and deep X-ray therapy before operation as well as after operation for the purpose of preventing the appearance of recurrent growths and metastases. He expressed the opinion that this action depended to a large extent on the lymphatic reaction in starving or strangling the cancer cells by stimulating the natural defences.

DR. H. FLECKEE (Melbourne) quoted various reports and statistics in support of the view that irradiation treatment was curative. He urged practitioners to refer patients to the radiologist at an early stage.

DR. C. E. DENNIS (Melbourne) said that at the Women's Hospital the disease in all the patients subjected to radiotherapy for malignant disease of the uterus had been

regarded as inoperable and very far advanced. The treatment had in consequence been mildly palliative. He had found that when the cervical condition appeared to be cured, recurrence often took place in the pelvis beyond the range of effective radium rays. The treatment had succeeded in arresting hæmorrhage, in relieving pain and in producing a diminution or cessation of discharge and the loss of the fætid odour. The patients had been improved generally and had increased in weight. When irritability of the bladder or increased frequency of micturition had been present, the radiation treatment had relieved the condition. He had experienced difficulty in persuading patients to submit to a second application, after the main symptoms had been removed. The best results had been obtained from deep X-ray therapy combined with radium treatment. Care should be exercised in applying large doses of X-rays after radium treatment.

PROFESSOR A. WATSON (Adelaide) advocated the combination of surgical and radiation treatment.

DR. J. T. MURPHY referred to several patients in whom pre-operative irradiation treatment had been employed and in whom good results had been obtained. The operation had been easier after irradiation, but he was convinced that surgery was still the ideal treatment in the majority of cases.

#### Gonorrhœa in Women.

DR. H. H. SCHLINK read a paper on the prophylaxis and treatment of gonorrhœa in women. After having dealt with the dire effects of the disease, he discussed three main points in prophylaxis. He advocated general prophylaxis by education of the public. Sex hygiene should be taught to children under proper safeguards. The age of consent should not be low, a certificate of health should be required before marriage, alcohol should be eliminated, overcrowding and labour competition as well as faulty environment should be avoided. Dr. Schlink supported the recognition and licensing of brothels and the medical supervision of prostitutes. In regard to treatment he demanded a definite standard of cure. Notification with secrecy, compulsory treatment with adequate provision for out-door and in-door treatment, prohibition of treatment by unqualified persons, the provision of ample laboratory facilities and other measures were recommended.

He described in considerable detail the methods of personal prophylaxis. In regard to actual treatment he laid down certain definite rules, including the local treatment of infected Skene's and Bartholin's glands. The standard of cure should consist in a failure to recover gonococci in smears on three occasions at considerable intervals of time, a failure to obtain the specific fixation of complement and a tolerance to a diagnostic injection of killed gonococci.

DR. F. A. MAGUIRE spoke of the value of the complement fixation test. It was essential that a mixture of different strains of organism should be used. He held that prophylaxis consisted in education and moral restraint. He favoured "Flavine" in concentrated solution for the treatment of the acute stage applied as a sitz-bath, but disapproved of vaginal douches.

DR. EDITH BARRETT (Melbourne) thought that education was the most important measure in prophylaxis. In Melbourne great improvement had taken place since the Society for Fighting Venereal Disease had instituted educational means. The Society aimed at the recognition of gonorrhœa as a disease and not as a moral offence. It was necessary to secure the cooperation of the women themselves. They had not obtained good results in the treatment of gonorrhœa at the Queen Victoria Hospital Clinic. Dr. Barrett spoke of the difficulties in diagnosis and in recognizing when a cure had been effected.

DR. R. FOWLER maintained that the complement fixation test was capable of replacing both examination of the genito-urinary organs and search for gonococci in smears. It led to early diagnosis and could be regarded as a guide to treatment. He admitted that it failed at times. After vaccine treatment had been adopted,

the test yielded a fixation of complement for four months after the termination of the treatment. He spoke enthusiastically about diathermy treatment, which had been proved at the Alfred Hospital to be the most valuable weapon in the treatment of gonorrhoea.

DR. J. KENNEDY (Melbourne) said that he had used diathermy in conjunction with Dr. Fowler and had been very pleased with the results.

DR. W. T. CHENHALL would wish to employ Bier's hyperæmia treatment in many women in whom the gonorrhoeal process was half cured.

DR. RALPH WORRELL advocated education as a prophylactic measure. He attached no importance to smear examination, but relied on the expression of pus from the urethra. He treated Skene's ducts by opening them and applying silver nitrate. He advocated the removal of the cervix by surgical means. He stated that this was not followed by stenosis or by interference with pregnancy or labour.

DR. GLEN H. BURNELL (Adelaide) supported the diathermy treatment of chronic endocervicitis. He considered it the best treatment, but stated that care should be taken not to char the cervix. Great heat was unnecessary. If properly applied, the scars did not appear to contract.

DR. BROWN CRAIG (Sydney) was very pessimistic regarding the possibility of curing gonorrhoea in women.

DR. FELIX MEYER drew attention to the danger of allowing gonococci occurring in young children to remain untreated. Leucorrhoea should always be investigated and gonorrhoea should be excluded. He agreed that it was very difficult to cure every woman with gonorrhoea.

DR. T. G. WILSON spoke of subacute and chronic gonorrhoea in women during pregnancy. He usually treated this condition with vaginal douches of lactic acid solution.

DR. T. W. LIPSCOMB (Sydney) did not agree that all cases of vaginal discharge in young children were gonorrhoea. Children were at times affected with vulvo-vaginitis and yet gonococci could not be seen in smears.

#### Fibroid Tumours Complicating Pregnancies.

DR. E. R. WHITE (Melbourne) read a paper on fibroid tumours complicating pregnancy. He said that the majority of pregnant women with fibroids experienced no difficulty either during pregnancy or at labour. Watchfulness was needed. If possible delivery should be effected by natural forces. Interference might be needed if pain, bleeding or fever appeared and did not subside with rest. Fibroids at times caused abortion. Sterility was occasionally traceable to fibroids. The growths were a frequent cause of mal-presentation and of obstruction to labour. The tumours often enlarged during pregnancy, but underwent involution during the puerperium. At times they caused retained placenta and *post partum* hæmorrhage. He advocated non-operative treatment, but if complications rendered surgical intervention necessary, myomectomy should be performed and an endeavour made to obtain a living child.

#### Breech Presentations.

DR. C. DUGUID (Adelaide) read a paper on the management of breech presentations. He avoided early interference and aimed at a thorough dilatation of the canal through which the child had to pass. In fact he objected to artificial aids unless the breech were impacted. He recommended ante-natal examination three weeks before labour, the provision of a warm prepared room for the delivery, the use of morphine and scopolamine, avoidance of the rupture of the membranes, pressure on the fundus through a towel rolled up into a ball, care in the control of the buttock and of the after-coming head. He had found that a minimum of interference was required.

#### Ergot and Strychnine.

DR. J. LEON JONA read a short paper on an apparent synergic action between ergot and strychnine. He had found clinically that strychnine administered hypodermically converted a relaxing or inactive effect of

ergot into a contractile effort. He cited his experimental investigations and exhibited the tracings. It appeared that the injection of strychnine increased the duration and strength of the contractions of the uterine muscle evoked by ergot. The result apparently depended on the integrity of the lumbo-sacral segments of the spinal cord.

### SECTION IV.—PATHOLOGY AND BACTERIOLOGY.

#### The Wassermann Reaction.

DR. A. H. TEBBUTT (Sydney) introduced a discussion on the technique of the Wassermann test by reading a paper based on the work of Dr. Mona Ross and himself. He dealt in detail with the preparation of the hæmolytic system and described a method of preparing red blood cells by which uniformity in the standard suspension was secured. One of the chief difficulties in performing the Wassermann test was encountered in the suspensions of red blood corpuscles and his experience with stock suspensions had been unsatisfactory. The cells in such emulsions acquired undue sensitiveness to hæmolysis. Stock hæmolysis on the other hand had proved satisfactory. For complement he used the fresh serum of a male guinea pig and titrated the complement so that one minimum hæmolytic dose was represented in 0.5 cubic centimetre of a one in eighty solution.

Dr. Tebbutt next discussed the effect of antigen on complement which in general was to depreciate the potency of the complement. Less depreciation in complement occurred when the amount of antigenic extract to the cholesterin added was relatively large. He exhibited graphs to show the rate at which complement was fixed in the ice chest, and concluded with a comparison of results of a large series of Wassermann tests carried out by the warm and cold methods respectively and a criticism of the claims advanced on behalf of the "sigma" (flocculation) test.

DR. S. H. SHEARMAN (Sydney) considered the relation which variation in behaviour of complement bore to the result in the Wassermann test. He emphasized that the two functions of complement in the reaction, hæmolytic activity and fixability, were independent of each other. Complement was of all the reagents the most difficult to standardize and therefore variations in these activities as manifested by different samples of complement were most likely to prove an important factor in the production of discrepant results. He detailed experiments of his own by which he arrived at the conclusion that discordant results might occur even when a highly sensitive technique, such as that of Griffiths and Scott, was employed. This discrepancy was due to the differences in the fixability of complement. He suggested as a means of obviating this a standardization of antigen by a method which he detailed, and that in the test proper there should be included an extra row of tubes, one for each serum, in which a dose of antigen used was equal to twenty-five times the unit. Any sera which showed hæmolysis in this tube, should be retested with another complement.

DR. C. BADHAM (Sydney) urged the adoption of a standard technique. In the Department of Public Health of New South Wales he had adopted the method of Griffith and Scott as a standard and authoritative mode of performing the test. The Griffith and Scott technique had given every satisfaction, but in urging the adoption of a uniform method in different laboratories, he did not wish to be understood as advocating that standardization should be carried to the point at which work directed towards the improvement of the technique ceased.

DR. R. J. BULL (Melbourne) said that it was clear that there was no real unanimity regarding the ideal method. His experience with ice-box fixation as compared with the warm method coincided with that of Dr. Tebbutt. He agreed with Dr. Shearman that the greatest difficulties were provided by the complement. As a source of complement he employed male guinea pigs of which he killed two every morning; he did not pool the sera. The multi-

plication of tubes was a serious consideration in the laboratory such as that of the Melbourne University where they were obliged to carry out fifteen to twenty thousand Wassermann tests *per annum*. As a rule he experienced no trouble with the red blood cell suspension and he always prepared his own hemolysin.

#### Epidemic Encephalitis.

DR. KEITH INGLIS (Sydney) exhibited a number of excellent photographic preparations relating to the macroscopical and microscopical appearances in the nervous system in acute encephalitis. As illustrating the difficulty of making accurate clinical diagnosis he supplied the *post mortem* findings in eight instances in which a clinical diagnosis of *encephalitis lethargica* had been made. In only one of these was the true histological picture of *encephalitis lethargica* observed and in this particular case the typical collarette of small round cells in the immediate neighbourhood of the venules was well demonstrated. The pathological basis of the other seven was found in such diverse conditions as cerebral hemorrhage, glioma, atrophy of convolutions in association with epilepsy, pontine angioma and hemorrhagic leptomeningitis. In the seventh no diagnostic appearances were observed. Three cases in which the clinical distinction was very difficult, were due respectively to septic infection, anthrax and encephalitis.

PROFESSOR J. B. CLELAND (Adelaide) directed the discussion towards the consideration of the forms of encephalitis occurring in man and the particular forms that had been recognized in Australia, the pathological changes observed, the mode of conveyance of the disease and the question of the establishment of a new immunity in encephalitis. Polio-myelo-encephalitis or infantile paralysis was the disease about whose distinct entity there could be no discussion. *Encephalitis lethargica* also seemed to be established as a well defined disease. Difficulty was experienced in the case of the Australian X-disease. Was this disease which had been at times epidemic in the western parts of New South Wales and in Queensland, a particular and acute manifestation of infection by the virus of polio-myelitis or was it an altogether different infection by an allied virus. Professor Cleland advanced argument in favour of regarding the Australian X-disease as a separate entity.

After discussion in which DR. OLIVER LATHAM (Sydney) and DR. REGINALD WEBSTER (Melbourne) participated, the Section agreed unanimously to the following memorandum to be submitted to the combined meeting of the Sections of Medicine, Neurology and Psychiatry and Pathology.

(1) For many years we have had sporadic cases and occasional small epidemics of acute polio-myelo-encephalitis (infantile paralysis). Most cases displayed spinal localization. Occasional examples of the medullary form had occurred and rarely probable examples of the encephalitic type.

(2) Since the recognition of *encephalitis lethargica* cases conforming to this clinical entity have been recognized and reported chiefly in Victoria.

(3) The Australian form of encephalitis known as X-disease of which two definite epidemics have at least occurred, is not lethargic encephalitis. It is either a distinct entity occurring elsewhere, but not recognized owing to its resemblance to forms of the other two diseases, or else it is the encephalitic type of ordinary acute polio-myelitis. The manner of the occurrence, clinical course and animal experiments incline one to accept the former alternative and certainly justifies the retention for the present, at least, of a distinctive cognomen.

(4) The localization of the lesions in these two or three diseases explains the prevalent symptomatology. In individual cases of any of these diseases the domain usually affected in one of the others may be involved with a consequent aping of symptoms.

#### Pneumococci and Serum Treatment.

DR. REGINALD WEBSTER (Melbourne) opened the discussion with a review of work he had carried out on two hundred

and thirty-four organisms of the pneumo-streptococcal group at the Children's Hospital, Melbourne, during the last two years. He discussed in detail the technique of identification of types and gave as a distribution of the types of pneumococci in lobar pneumonia in children: Type I., 38.3%; Type II., 5%; Type III., 5.8%; Type IV., 0.8%; heterogenous groups 40.8%, streptococci 9.2%. The figure for the Australian Type IV. did not represent the true percentage incidence of this type as a limited number of strains only had been examined for the presence of this type.

Dr. Webster discussed seasonal variations in the incidence of types, particularly with reference to Type I. Tables were distributed to show the occurrence of the several serological types of pneumococci and of streptococci in the various complications of pneumonia. The latter part of the paper was devoted to a consideration of serum therapy and, while the number of examples of Type I. infections adequately treated with serum was too small to warrant a general statement, evidence was adduced to show that certain individual children had been greatly benefited by the administration of monovalent Type I. serum.

DR. A. H. TEBBUTT (Sydney) presented observations of Dr. Mona Ross and himself on lobar pneumonia as it had occurred in Sydney during the last two years and brought forward statistical data on which he based a comparison of the incidence and mortality of pneumonia in Sydney and Melbourne. The figures for Melbourne had been drawn from a communication by Dr. S. W. Patterson in which five hundred and twenty-one cases of lobar pneumonia had been reviewed. In a series of 1,555 patients with pneumonia admitted to the Royal Prince Alfred Hospital the death rate was 17.1% and the incidence of empyema 8.7%. Among five hundred and twenty-one patients at the Melbourne Hospital empyema had occurred in 8.6% and the general mortality was higher than that shown for the Sydney series. Dr. Tebbutt suggested that the lower death rate in Sydney might be dependent upon climatic influences and quoted Anders in the statement that the major influence of season was not direct but indirect in that the deficient ventilation brought about by closed doors and windows in colder climatic conditions favoured greater virulence and concentration of the specific poison.

With reference to serum treatment Dr. Tebbutt said that the practice at the Royal Prince Alfred Hospital had been to administer polyvalent serum without waiting for a determination of type. The test for sensitiveness was the only preliminary to the injection of serum. Blood culture and bacteriological examination of the sputum were carried out concurrently. In one hundred and seventy-nine patients who had been admitted to hospital during the twelve months July 1, 1922, to June 30, 1923, the average duration of the disease at the time of their admission had been 4.7 days. In view of this serum administration had often been unsatisfactory, because the serum was not injected until relatively late. He felt unable to present any general conclusion regarding serum therapy and had not observed any evidence for or against the acceleration of the crisis.

DR. B. WARNER (Melbourne) communicated her experience in work with pneumococci at the Walter and Eliza Hall Institute for Research in Pathology and Medicine. She had adopted the rapid method of determination of type described by F. W. Griffith in Report No. 13 of the British Ministry of Health. Slides were examined to show the number and percentage occurrence of the several types of infection and percentage mortality among one hundred and forty-four patients with lobar pneumonia investigated since June, 1922. Another slide demonstrated the relatively high incidence of Type I. infection in the winter months as compared with other seasons of the year.

In discussing serum treatment Dr. Warner stated that twenty-five patients had been tested for sensitiveness and twenty-two treated with monovalent Type I. serum. No selection for serum treatment was practised. She felt that the number treated with serum was too small to

admit of a statement of any general conclusion, but individual patients appeared to have benefited.

DR. W. J. PENFOLD (Melbourne) stated that the types of pneumococci represented in one hundred and eight strains examined at the Commonwealth Serum Laboratories were: Type I., 37%; Type II., 7.2%; Type III., 9%; Australian Type IV. (Setch), 10%; and heterogeneous group, 36.80%. The Australian Type IV. was thus the second most frequent in occurrence in this series. He had subdivided the heterogeneous group and found no less than twenty-one individual serological types therein. The production of antisera against prevailing pneumococci thus became an extremely complex matter. On the whole he was disappointed that the results attending serum treatment were not better, but he was afraid that anti-pneumococcal serum did not always get a fair chance. Too often in hospital work there was serious lack of coordination between the laboratory and clinical personnel and he considered that the status of the pathologist should be that of a consultant and that he should have free access to all clinical material. In the matter of serum therapy the pathologist ought also to have charge of therapeutic administration of serum.

DR. R. J. BULL supported Dr. Penfold in his advocacy of closer cooperation between clinician and pathologist. It appeared from the remarks of the several pathologists who had spoken, that they had been under serious disability in the supervision of serum treatment. Analysis of the heterogeneous group served to render an already involved subject still more complex. Dr. Bull concluded with some remarks relative to specific instances of lobar pneumonia in which vaccine therapy was attended with gratifying results.

DR. C. H. KELLAWAY (Melbourne), with reference to the comparison drawn by Dr. Tebbutt between the mortality rates for lobar pneumonia in Sydney and Melbourne, asked whether it was necessary to introduce an explanation for such a small difference in mortality. A factor which had to be considered, was that no children were included in the series of patients drawn from the Melbourne Hospital. The inclusion of a number of children in the figures for the Royal Prince Alfred Hospital would tend to lower the death rate. It was unfortunately true that laboratory workers frequently experienced great difficulty in obtaining the cooperation of members of the resident and visiting medical staff.

After further discussion, in which DR. C. H. SHEARMAN and PROFESSOR J. B. CLELAND took part, brief reply was made by DR. WEBSTER and TEBBUTT.

After DR. SYDNEY JAMIESON had read a paper on "The Aetiology of Benign and Malignant New Growths," PROFESSOR J. B. CLELAND delivered an address on cancer.

#### Blood Analysis.

DR. OLIVER LATHAM (Sydney) read a paper entitled: "Some Observations on Folin and Wu's Method of Blood Analysis." He brought before the Section recent work in connexion with the examination of the blood for its urea, non-protein nitrogen, creatinin, uric acid and sugar content. He detailed and demonstrated the colorimetric and nephelometric methods and apparatus employed, with the modifications introduced by American investigators and by himself and his associates in Sydney. Dr. Latham described a simple colorimetric method for the estimation of blood sugar for which as small a quantity as 0.2 cubic centimetre of blood sufficed. He described at length the improved methods of preserving standard solutions, such as those of sugar and uric acid, and also a simple colorimeter modified from that of Hawksley. This apparatus was very inexpensive and extremely useful.

#### Bacillary Dysentery in Children.

DR. REGINALD WEBSTER opened a discussion on bacillary dysentery in children. He based his remarks on his experiences at the Children's Hospital during the summer of 1922 and 1923. He advocated the use of the term bacillary dysentery rather than summer diarrhoea, on the

ground that bacillary dysentery was endemic among children and occurred at all times of the year, becoming epidemic in the summer months. During the twelve months July 1, 1922, to June 30, 1923, he had met one or more examples of dysenteric infection in infants in every month of the year. In three hundred and four bacteriological examinations conducted during the summer of 1922-1923 he had recovered dysenteric organisms from sixty-six children. In fifty-seven instances the infection had been due to *Bacillus dysenteriae* (Flexner) and in the remaining nine the organism implicated was the *Sonne bacillus*. He had forwarded thirty-seven strains to Miss Williams of the Walter and Eliza Hall Institute who had classified them serologically. It did not appear from this limited number of observations that the identification of a given infection with respect to the serological rate of dysentery bacillus involved afforded any information with respect to prognosis or likelihood of response to serum treatment. The mortality in all the serological groups was very heavy and in general results attending serum treatment were very disappointing. He had communicated detailed observations respecting serum treatment to the Section of Diseases of Children. Dr. Webster concluded with some remarks on the *post mortem* findings in bacillary dysentery of children.

DR. MARJORIE LITTLE (Sydney) reported the result of a study of this disease in Sydney by Dr. Mona Ross and herself. Of five hundred and twenty-four stools submitted to her for examination one hundred and fifty-three contained blood and mucus detectable by naked eye inspection and in one hundred and seventeen of these dysenteric organisms were isolated. Altogether pathogenic organisms were recovered from one hundred and eighty-one (34%) of the specimens examined. The pathogenic bacteria were distributed as follows: *Bacillus dysenteriae* (Flexner) one hundred and seventeen or 64%; *Bacillus dysenteriae* (Shiga) six or 5.1%; *Bacillus dysenteriae* (Flexner) was isolated from eighty-six or 73.5% of all stools which yielded *Bacillus dysenteriae*; late lactose fermenters were recovered in twenty-five instances. The late lactose fermenters (*Sonne bacillus*) represented 21.3% of all stools yielding *Bacillus dysenteriae*.

With regard to serum treatment Dr. Little said that although the number of children treated was small, the results had been encouraging. It had been their practice to administer serum to every child passing blood and mucus without waiting for a bacteriological report. At first serum had been given by intramuscular injection, but later this route of administration had been abandoned for the intraperitoneal. In making the intraperitoneal injection thirty cubic centimetres of anti-dysenteric serum were diluted in saline solution containing 5% of glucose. Dr. Little stated that the illness was, as a rule, of shorter duration when specific therapy was employed.

MISS F. E. WILLIAMS (Melbourne) said that with Dr. S. W. Patterson she had been engaged at the Walter and Eliza Hall Institute in a study of the late lactose fermenters. Among the cultures examined they had been able to identify a number of examples of the *Sonne bacillus*; this organism behaved as a distinct serological entity and its various representatives were agglutinable by the homologous serum in dilution of 1:6400. They had so far been unable to prove pathogenicity of the remaining late lactose fermenters in animals or to produce agglutinins in the serum of rabbits inoculated with a number of different strains.

DR. C. H. SHEARMAN remarked that the prevalence of true bacillary dysentery in various Australian centres had been abundantly established and it was remarkable that no mention had been made in the Commonwealth Year Book of amœbic or bacillary dysentery. He had found a number of individuals affected with dysentery in the mining district of Kalgoorlie and in them had demonstrated the presence of the vegetative and encysted forms of *Entamoeba histolytica*. He attributed the outbreak influx of foreigners to the mining centre. He quoted as an example of the carrier state a returned soldier who had suffered from recurring attacks of dysentery at intervals of a few months and from whom the dysentery

bacillus of Flexner had been recovered in each successive attack.

PROFESSOR J. B. CLELAND (Adelaide) suggested that work on bacillary dysentery in the immediate future should be directed towards ascertaining the reservoirs of infection and the mode of conveyance.

DR. W. J. PENFOLD raised the question of prophylaxis by adoption of extensive anti-dysenteric inoculation.

Brief remarks in reply by Drs. WEBSTER and LITTLE closed the discussion.

#### Paget's Disease of the Nipple.

DR. KEITH INGLIS exhibited a number of beautifully mounted drawings and micro-photographs illustrative of the pathological process in Paget's disease of the nipple. After reviewing the teaching of Butlin, Bowly, Handley, Cheate and others regarding the essential nature of this disease, Dr. Inglis adduced evidence to show that it was neoplastic *ab initio*. Although it might be of low malignancy, it was a surface cancer which commenced at the junction of the lactiferous ducts with the epidermis or possibly in a lactiferous duct near its outlet. He drew attention to a recent report by McLeod on Paget's disease on the umbilicus, occurring in a patient in whom there was a persistent vitelline duct. Dr. Inglis emphasized a similarity of Paget's disease to squamous epithelioma as it occurred in the lip and pointed out that it had much in common with leucoplakia and epithelioma of the tongue. Scirrhus carcinoma of the breast was not a precursor of Paget's disease as maintained by Handley, but was a common sequela of this condition. When scirrhus carcinoma supervened, it was generally very malignant.

#### Clinical Report.

Reports of three interesting case records compiled by SURGEON-LIEUTENANT W. E. J. PARADISE (Royal Australian Navy) were submitted by SURGEON-CAPTAIN EAMES. The first embodied a description of inguinal bubo with which was associated eosinophilia. Eosinophile cells comprised 10% of the leucocytes in the blood and 50% of the cells present in the pus evacuated from the local lesion. The differential diagnosis as between tropical bubo, bubo as a result of infection with intestinal parasites and filariasis was fully discussed.

In the second report the occurrence of exaggerated hypertrophy of the gums as the first stage in the course of acute leuchæmia was described.

The third report concerned an instance of aspergillosis in a female patient. The sputum had been submitted for examination with respect to the presence of tubercle bacilli and in the semi-transparent papraceous plaques which were the feature of the specimen, densely matted hyphæ and spores had been discovered.

#### Complement Fixation in Tuberculosis.

DR. CHARLES BADHAM initiated a discussion on complement fixation methods in tuberculosis. He had employed cold fixation at 6° C. utilizing living bacilli as antigen. A considerable number of tests, however, had been carried out by fixation at 37° C. with a suspension of Dreyer's antigen. By the first-mentioned method fifty sera all of which had been secured from patients in whom a definite diagnosis of tuberculosis was established, were examined and of these thirty-six gave a positive finding. Among the thirty-six were nine sera which also reacted to the Wassermann test. Dr. Badham emphasized that when cold fixation was employed, tubercle bacilli both living and defatted, were capable of acting as antigens in the Wassermann reaction because they contained lipid material. He discussed the question of the specificity of the Wassermann reaction as carried out by recent cold fixation methods on the sera of tuberculous patients. He had found Dreyer's antigen equal in value to living tubercle bacilli in the performance of the test.

DR. L. M. BRYCE (Melbourne) read a paper in which she reviewed experiences at the Walter and Eliza Hall Institute of Research in Pathology and Medicine in the

complement fixation reaction as applied to tuberculosis. The technique employed was that of the Harrison method of performing the Wassermann test. She had worked with antigens of four varieties: (i.) 1% suspension of dead tubercle bacilli in carbol-saline solution, (ii.) antigens of the general nature of the tuberculins, (iii.) extracts of derivatives of tubercle bacilli, (iv.) extracts of tuberculous organs and tissues. The first mentioned of these antigens had proved the most satisfactory and with it no pseudo-positive reactions with the sera of syphilitics had been encountered. The majority of the positive findings in the complement fixation test for tuberculosis were clear cut; she was enabled to describe them as "P+++", thereby indicating that more than six minimum hemolytic doses of complement had been fixed. The finding in any given instance in which the reaction fell short of complete inhibition of hemolysis, was recorded as "negative." Dr. Bryce submitted results of the examination of five hundred and three sera. Of seventy obtained from patients in whom there could be no question regarding tuberculosis, fifty yielded a positive result in the complement fixation methods. The sera of forty-eight patients grouped clinically as suspected tuberculosis yielded a positive result in twenty-two instances. These results were obtained by the Harrison method. She had found the ice-box method more sensitive than that of Harrison, but it had the disadvantage that it gave a certain number of pseudo-positive reactions with the sera of syphilitics and sometimes determined a positive finding in the sera of patients unsuspected of tuberculosis.

DR. W. CAMAC WILKINSON (London) expressed very great interest in the question of the application of the complement fixation test to tuberculosis. His interest had dated from the time when he had been privileged to work in Professor Wassermann's laboratory and had witnessed some of his pioneer work. Since that time he had been unable to keep in close contact with laboratory work in this field and his knowledge of the subject had, therefore, been acquired indirectly. He drew attention to the important work of Engel and Bauer on complement fixation in tuberculosis. It was noteworthy that the complement fixation reaction was most consistently obtained in the sera of patients who had been given large doses of tuberculin in the course of treatment. He expressed doubt regarding the utility of the complement fixation test in routine practice. It was difficult to apply, and reliable results could only be obtained by expert workers. He was of opinion that the proper use of tuberculin provided the best specific test for the presence of tuberculosis.

DR. F. GUY GRIFFITHS (Sydney) said that so far from criticizing pathologists for the present incompleteness of their results not yet claimed to be conclusive, clinicians should be grateful to them for their scientific endeavours which were likely to be very helpful in the future. It was a noteworthy fact that the first application of Bordet and Gengou's complement fixation phenomenon to tuberculosis had been made by Wassermann and Bruck. Attention had subsequently been diverted to syphilis, but the work on tuberculosis had been kept alive by Arloing, Courmont and others; the recent wave of enthusiasm promised great advances.

DR. A. H. TEBBUTT remarked that possibly clinicians expected too much from the complement fixation reaction in tuberculosis. The phenomena of the Wassermann reaction for syphilis and the complement fixation in tuberculosis were not altogether parallel. The Wassermann reaction was a measure of immunity rather than of infection and the response in the serum of the patient diminished under specific treatment. Complement fixation reaction in tuberculosis, on the other hand, was intensified by specific therapy. It should be remembered that in the early stage of gonorrhœal urethritis the complement fixation test applied to the blood serum usually failed to induce a response, but with the onset of complications such as arthritis, the results of the test were commonly positive. He urged that the complement fixation reaction in suspected tuberculosis should be given extended trial in conjunction with the specific cutaneous and subcutaneous tests. In the course of time, if intelligent study were

sustained, useful information would be gained regarding the progress and the phase of immunity in patients affected with tuberculosis.

#### Tuberculosis.

After keen discussion the following memorandum submitted by Dr. W. J. PENFOLD was unanimously adopted as the opinion of the Section.

Since bovine tuberculosis constitutes in Victoria approximately one-fourth of the tuberculosis in the cases investigated during the first four years of childhood, it is in the opinion of this Section an important practical problem of preventive medicine and this Section believes that it can be most effectively dealt with by compelling dairymen either: (a) to clear their herds of tuberculous animals by means of the tuberculin test or (b) to Pasteurize or have Pasteurized to the satisfaction of the sanitary authority all their milk for human consumption. This may necessitate a small rise in the price of milk, but this Section believes that such a rise would be legitimate in the interests of the children.

Tuberculosis due to the human type of bacillus is a much bigger problem than bovine tuberculosis in the human subject.

This Section believes that the most promising way to handle it is to classify the tuberculous according to their degree of infectivity and to give to those who are highly infectious, the right to farm settlement or hospital benefit. If any attempt is made to compel these people to go into either of such institutions, so much opposition will be engendered that valuable preventive work will be nipped in the bud, but if such benefit is to be accepted or rejected by them at their own option, the probability is that great numbers will avail themselves of it.

The degree of infectivity will depend upon the number of tubercle bacilli that the particular patient is excreting, his sense of responsibility in respect of his infected discharges, his education, his home surroundings, the type of contacts (more especially little children) living in the same house and many other factors, so that some referee or referees representing the authority supplying the benefit would be required to classify the patients.

Such patients—at least in the farm settlement—would probably be able to do only a fraction of a day's work. That fraction should be determined by the medical officer in charge, but in each case the individual should be paid the standard rate of wages as if he were working a full day, so that any dependants he might have, would not be prejudiced by reason of his treatment. The question arises as to whether it would not be a wise preventive medicine proposition to pay the standard rate of wages to hospital patients also, even though they are not able to work at all. Otherwise they are likely to return to their homes, to be supported by their relatives. Under these circumstances home conditions would be bad, the overworked relatives would at the same time be unduly exposed to infection and great evil would result from the arrangement. We believe, therefore, as a Section, that patients in the hospital stage of tuberculosis should also be granted the standard rate of wages. Such favourable conditions for patients and their dependants would be found nowhere else in our society and they would naturally be availed of.

It is the opinion of this Section that in view of the very great difficulty experienced by hospital pathologists in conducting research studies by reason of the pressure of routine work, special provision should be made for the accurate investigation of the incidence of tuberculosis.

It is very desirable that the Commonwealth of Australia should set apart a highly trained and efficient personnel for research work upon methods for the effective treatment and control of this disease.

THE PRESIDENT's address on disease in the Australian aboriginal was delivered by PROFESSOR J. B. CLELAND (Adelaide).

#### Iso-Agglutinins.

DR. A. H. TEBBUTT dealt briefly with the new iso-agglutinins recently described by Guthrie and Huck. He had examined over forty specimens of blood by cross-agglutination experiments before he found any abnormality and at that stage demonstrated in one specimen Group III. agglutinin in the corpuscles and Group II. agglutinin in the serum. The patient from whom this specimen was obtained, was over eighty years of age and no work on the hereditary aspect could be undertaken. Dr. Tebbutt discussed the work of Guthrie and Huck from the Mendelian aspect and confessed that so far he had been unable to explain the results of the observers named; at the same time he felt sure that the solution lay in this direction.

#### Bio-Chemical Index.

DR. G. M. HEYDON (Rabaul) and DR. T. W. MURPHY (Sydney) submitted a paper on the bio-chemical index in natives of the territory of New Guinea.

Blood group determinations were recorded for seven hundred and fifty-three Melanesians, as carried out in the laboratory of the Commonwealth Department of Health at Rabaul. All the subjects were males and none was under the age of ten years. The method of Moss was employed, although the authors admitted that it was open to some objection. The results given are shown below.

Agglutinogens Present (von Dungen and Hirschfeld).	Jansky's Groups.	Number of Natives Tested.	Percentages.
O	I.	404	53.7
A	II.	202	26.8
B	III.	123	16.3
AB	IV.	24	3.2

The sum of Groups II. and IV. divided by the sum of Groups II. and IV. yielded the bio-chemical index which for the series was determined as 1.54. This index placed the Melanesians in the intermediate type (Hirschfeld) as distinct from the European and Asia-African types.

### SECTION V.—PREVENTIVE MEDICINE AND TROPICAL HYGIENE.

#### The Control of Tuberculosis.

THE opening paper on the control of tuberculosis was a brief statistical review by Dr. J. H. L. CUMPTON (Melbourne). He showed that the death rate from pulmonary tuberculosis was lower in the Commonwealth than in any other country except New Zealand. The death rate of tuberculosis in all forms had fallen from 175 per 100,000 in 1885 to 61 in 1922; and for pulmonary tuberculosis the death rate had fallen from 135 per 100,000 in 1884 to 53 in 1922. There was a rise in the mortality in the age group under five years, a lowered mortality in both sexes between five and fourteen years and thereafter a sharp rise reaching its maximum in females between twenty-five and twenty-seven years and in males between forty-five and forty-nine years. In females, however, the mortality fell after the age of twenty-seven, but in males it remained high up to the sixty to sixty-five age period. Of the main capital cities the highest tuberculosis mortality was in Adelaide, while the rate had remained unduly high in Hobart and Launceston. The death rate in Queensland from forms of tuberculosis other than pulmonary had reached the extraordinarily low figure of three per 100,000.

DR. W. J. PENFOLD (Melbourne) read a paper in which he reviewed the incidence of tuberculosis in Australia as

shown by *post mortem* results and the response to the von Pirquet test. This work had been carried out at various hospitals in the several States of the Commonwealth. He concluded that about 25% of adult males and 22% of adult females coming to autopsy in Australia harboured definite tuberculous lesions. In 90% of adults these lesions were in the respiratory system. The greatest frequency of tuberculosis was found in the age period between eleven and twenty years, while the second maximum occurred between forty-one and fifty years; thereafter it fell throughout life. Tuberculosis was found very infrequently in the first year of life, but the incidence rose from one to three years to 23% and after that remained at about 18%. The von Pirquet test carried out in persons in hospital showed in respect of Adelaide and Victorian hospitals that 60% of the patients who had no clinical evidence of the tuberculosis, yield a reaction. On the other hand in the Sydney hospitals only 31% of the patients tested gave a reaction. The von Pirquet test carried out in two large suburban schools in Melbourne showed that over 70% of scholars had an infection and a similar result had been obtained in a limited number of examinations amongst medical students.

DR. PENFOLD also gave the result of the examination of six hundred dairy cattle. In stud herds 3% of the animals yielded reactions, while among dairy herds which supplied milk for human consumption, nearly 17% of the cows were tuberculous. This was contrasted with the information obtained by the Bureau of Science and Industry in the special inquiry carried out into the prevalence of tuberculosis amongst stock in which it was found that the percentage of tuberculosis in abattoir cattle varied from 4% to 7%, in dairy cattle from 8% to 10% and in pigs from 3% to 10%.

DR. G. M. HEYDON (Rabaul) had found amongst natives coming to autopsy in the territory of New Guinea 30% of tuberculous lesions. In a large number of von Pirquet tests carried out he found that 29% of adult natives over fifteen years of age yielded a reaction, while of those under fifteen 13.6% reacted.

DR. HARVEY SUTTON (Sydney) read the results of the examinations carried out in a very large number of school children in New South Wales. He concluded that these children apparently were affected to only a very slight extent by clinically detectable tuberculosis.

DR. E. W. FERGUSON (Sydney) gave the result of an investigation for tubercle bacilli in milk which had been carried out on the milk supplied to Sydney from suburban dairies. The result had been an entirely negative one and contrasted very strangely with the results of similar inquiries carried out in other parts of the world.

DR. W. J. PENFOLD read a paper in which he detailed results of an investigation carried out on material supplied to him from the Children's Hospital. He had found that 26% of the tuberculous material from children in the first four years of life represented infection with bovine bacilli. He concluded, therefore, that the tuberculous cow was a factor which should be eliminated.

DR. F. S. HONE (Adelaide) stated that the whole of the *post mortem* and von Pirquet work carried out had been performed as nearly as possible on uniform lines.

DR. R. CILENTO (Townsville) confirmed Dr. Heydon's results from his own personal observation in regard to the facility with which the disease was contracted among Melanesians and in regard to the rapid course of the infection. He emphasized the patchy nature of the disease and stated that tuberculosis was found in increasing proportions along the routes which natives traversed to their homes on the completion of their indentures.

PROFESSOR E. H. WOODRUFF (Melbourne), speaking of the extent of bovine infection, considered that compensation ought to be paid to stock owners for cattle destroyed on account of tuberculosis. He hoped the Congress would pass a resolution affirming the desirability of this step.

DR. GERTRUDE HALLEY (Adelaide) said that she had paid particular attention in South Australia to tuberculosis amongst school children in the past twelve months and

had seen only one child with manifest disease amongst four thousand scholars.

DR. JEAN S. GREIG (Melbourne) had carefully watched for tuberculosis during the past six months and had records of four affected children only among seven thousand scholars. She contrasted the types of school children in the inquiry mentioned previously by Dr. Penfold and pointed out that in one case the children came from a good class residential suburb, while in the other the population could be classed as an industrial one.

DR. T. W. SINCLAIR (Melbourne) and DR. SYDNEY MORRIS (Hobart) joined in a general discussion covering points dealt with by the previous speakers.

DR. S. A. SMITH (Sydney) read a paper entitled: "A Study of the Incidence of Pulmonary Tuberculosis in a Group of Specially Susceptible People." He stated that as a result of the examination of over eight thousand mine workers at Broken Hill the fact had emerged that pneumoconiosis arose from the inhalation of dust in the mines.

Among those persons in whose lungs the characteristic fibrotic changes due to dust were recognized, 46% were infected with tuberculosis, while in those without fibrotic changes 2% only were infected with tuberculosis. In other words "dusted" persons were twenty-three times more susceptible to tuberculosis than those who were not "dusted."

The progress of all persons affected with simple pneumoconiosis had been recorded and studied over a period of two and a half years. Two classes of these could be recognized: (i.) those who had gone to live in country areas where there was a low density of population and (ii.) those who had lived in towns or areas with a high population density. Infection with tuberculosis had occurred infrequently in the first class, in about 2%, but very frequently in the second class, approximately 27%.

The two explanations put forward of the increased incidence of tuberculosis in the pneumoconiotic were: firstly that it was due to reactivation being favoured by the lung changes and secondly that it was due to infection occurring subsequently in the pneumoconiotic changes in the lungs.

The latter was probably the real explanation. The density of population was also an important factor.

DR. FRANK L. KEER (Melbourne) read the results of an analysis of the work of various Royal Commissions which had inquired into the question of tuberculosis in miners. There was general agreement that the most dangerous dust was that containing fragments of free crystalline silica encountered in the air of metalliferous mines and prevalent during stone crushing. The extent of tuberculosis in miners was found to vary considerably. For example W. Summons in Bendigo had found in 1906 that the number of deaths from tuberculosis in miners was six times that among adult males in the State. In Western Australia, on the other hand, J. H. L. Cumpston had found in 1910 only 1.5% of working miners to be affected with tuberculosis.

DR. J. S. PURDY (Sydney) dealt with tuberculosis in relation to social and economical conditions.

The death rate in Sydney showed a high early wave in females, reaching its maximum at about the age of thirty years. In males, on the other hand, this maximum was reached at about thirty-five, the difference being chiefly due to occupation. The mortality rate for labourers he found to be three times as great as the mean of all occupations. The incidence and death rate were definitely correlated with the density of population and with the average number of inhabitants occupying a house or room. He considered that notification of cases had been of little value.

DR. M. J. HOLMES (Melbourne) gave detailed information concerning the conditions of persons receiving invalid pensions on account of tuberculosis. These showed that there were no pensioners who had lived in Australia less than five years. Overcrowding did not appear to have any evident effect nor did close contact with persons with "open" infection appear to produce disease in the contact.

DR. C. G. McDONALD (Sydney) read a paper by DR. SINCLAIR GILLIES and himself on the work carried on for the past ten years at the anti-tuberculosis dispensary at the Royal Prince Alfred Hospital, Sydney. He stated the objects of a dispensary were as follows: To determine the presence or absence of tuberculosis in the patient and to decide its extent; to ascertain whether the process is "open" or "closed," active or quiescent; to gain information as to the patient's mode of life, temperament, environment and financial position; to determine the best mode of treatment for the individual; to drill him in the precautions necessary to render him innocuous to others.

He regarded the keenness, tact and skill of its officers as the factors which made for its success. An examination by means of von Pirquet test was carried out on the contacts of patients with the result that 57% gave reactions.

The proportion of contacts infected was 28%. He emphasized the necessity for attaching a dispensary to a hospital in order to have the advantage of X-ray diagnosis, specialist examinations and the like. He regarded a properly conducted dispensary as one of the most important factors in the control of tuberculosis, but insisted on the need for cooperation with sanatoria, in-patient departments of hospitals, health authorities and charitable bodies.

DR. H. W. PALMER (Waterfall) in his paper on inherent weaknesses of sanatorium treatment stated that the functions of a sanatorium were two-fold. They were the education of the patient and the cure of his disease. He voiced the need for linking up sanatoria with other agencies into a comprehensive organization for the prevention and control of tuberculosis and considered that the responsibility rested on the medical profession of indicating the methods to be followed. He hoped the Congress would take the lead.

DR. J. C. HISLOP (Melbourne) in reading a paper on "The Position that the Sanatorium Occupies in the Control of Tuberculosis," concurred with Dr. Palmer's remarks. He outlined a scheme for the effective control of tuberculosis under one organization having the sanatorium as its centre.

In a discussion which followed, DR. HARVEY SUTTON agreed with Dr. Hislop that there should be one controlling body for all classes of tuberculous persons.

DR. GUY GRIFFITHS (Sydney) and DR. MCINTYRE SINCLAIR (Wentworth Falls) referred to the question of notification and considered that this aspect of the matter should be the subject of further inquiry.

DR. D. G. ROBERTSON (Melbourne) referred to recently published observations by Gye, Purdy and Kettle on the harmful influence of silica. They considered that its harmful influence was exerted in its colloidal state. It was a matter for consideration whether hematite or alumina could form colloids with a similar action to silica.

#### Diphtheria.

DR. W. C. SAWERS (Melbourne) read a paper on diphtheria incidence and mortality in Australia. He pointed out that a definite death rate still existed despite the fact that the introduction of antitoxin in 1894, 1895 and 1896 had produced a great fall in the death rate. The number of cases notified increased in the months of March, April and May and greatly diminished in December. The number of cases was greater at the southern end than at the northern end of the continent.

DR. F. G. MORGAN (Melbourne) said that attention was to be directed to the exclusion of follicular tonsillitis caused by other organisms, Vincent's angina and secondary syphilitic ulceration. For practical purposes bacteriological diagnosis was based on morphological appearances alone, although this was not infallible. He outlined the method for the preparation of antitoxin and stated that the strain of toxin used was Park and Williams's No. 8 strain, which was used all over the world.

DR. G. H. BURNELL read a paper by DR. BARLOW and himself on the prevention of diphtheria. This work had been carried out in Broken Hill in 1919 when over five

thousand school children had been examined and approximately 1% had been found to be carriers. The diagnosis was based on morphological appearances, all solid types of bacilli being rejected and granular type only accepted.

Of the children examined 2.6% had large or diseased tonsils, but in only 2% had diphtheria bacilli been obtained. All carriers with one exception had been admitted to hospital for isolation, but had been allowed to mix with convalescents from diphtheria. Many had cleared up spontaneously. In refractory cases anti-bacterial serum was used with success, while tonsillectomy was often successful in causing the disappearance of the bacilli.

DR. K. R. MOORE (Bendigo) read a paper on "The Application of Recent Methods in the Control of Diphtheria." He gave the results of a campaign carried out in Bendigo in 1923. The work had consisted in the culturing of the organisms and examination of swabs, virulence testing and isolation of pathogenic strains, followed by a trial of the Schick test and active immunization among the school children. Over seven thousand persons had been tested, including the scholars and teachers of fifty-eight schools. Of these 9.69% had been found to be carriers; the percentage among boys was 10.6, among the girls 8.38 and the teachers 1.5. The distribution of carriers was shown to be definitely larger in the more thickly populated areas, where 10% to 11% of carriers were found in contrast to the outlying rural districts where only 5% of carriers were detected.

It was particularly noted that the carriers were often seated in close proximity to one another in the class. Superficial examination of the carriers showed that only 13% could be classed as having healthy throats. Virulence tests had yielded reactions in slightly less than half the persons and it appeared that the bulk of virulent germs inhabited the throat rather than the nose. Schick tests had been completed in nearly sixteen hundred children, in 45.9% of whom a reaction had been obtained. Children of the same family tended to react similarly and the rate remained about the same among children who had previously had diphtheria, and among carriers.

Subsequently active immunization had been carried out on the greater majority of those yielding a reaction to the Schick test. Three injections had been given to each child at weekly intervals. No very severe reactions had been met with, although moderately severe reactions had occurred in a small number of children after the second injection. No such reactions, however, had occurred in the case of younger children. After two months the immunity had been retested, when it had been found that the number of those yielding reactions had been reduced from 45.9% to 17%. No child receiving the full course of immunization had since developed diphtheria and it might safely be concluded that more than 82% of the children fully treated had been immune to diphtheria.

DR. E. W. FERGUSON read a paper on Schick reaction in country schools in New South Wales. Tests had been made in two country towns, Forbes and Parkes, which were regarded as typical examples of country towns with a population of under one thousand. In Forbes 20.76% of the children tested had given a Schick reaction, while in Parkes 31.50% had reacted.

The percentage of those reacting had been much higher among girls; this revealed a lower degree of immunity as compared with the boys. Subsequently a number of children had been inoculated with toxin-antitoxin.

DR. F. V. SCHOLES (Fairfield) read a paper on the rôle of the practitioner in the control of diphtheria. He stated that there had been a considerable decrease in Victoria in secondary laryngeal diphtheria as a result of the action of parents in seeking medical aid promptly, combined with prompt diagnosis. He advocated a thorough inspection of the other members of the family by the attendant practitioner when he discovered diphtheria in a member of a family. He considered that this was of more practical value than swabbing. The child with the unhealthy nose and throat in whom diphtheria had largely become a habit, might readily be missed.

DR. T. W. SINCLAIR (Melbourne) read a paper on the general control of diphtheria, including legal control and disinfection. He outlined the statutory powers of control of the disease and emphasized the importance of the infectious person in spreading the disease. Such a person was sometimes not ill enough to seek medical advice. He might remain unrecognized indefinitely, but meanwhile he was a source of danger to those with whom he came in contact. In regard to disinfection he stated the ideal method to be destruction of the infected material as it left the body.

#### Prevention of Disease in Industrial Workers.

DR. A. J. LANZA (Melbourne) read a paper on industrial hygiene in the general scheme of disease prevention. He stated that the art of medicine as applied in industry did not differ from the same art as practised under any other conditions. He defined the industrial physician as one who gave all or part of his professional services to industry, in which term he included factories, mines, large mercantile establishments and various branches of the public service. He considered the industrial physician more like a public health official than a general practitioner in that he had greater opportunity of concerning himself with prevention of disease. He had an opportunity of concerning himself with prevention of disease. He had an opportunity of treating minor surgical and medical ailments, thus helping to avoid more serious disabilities. At the same time he had a knowledge of industry and conditions of the work that would enable supervision to be made to counteract influences prejudicial to health. In this conception of the industrial physician as a specialist in preventive medicine was revealed the potential service of industrial hygiene to the community.

Industrial hygiene comprised the adaptation of the worker to the work. This was accomplished by physical examination which meant that no person was placed in a position where he might be a trouble to himself or his associates and that each individual was employed to the best advantage. It comprised also the regulation of working conditions and thirdly made provision for the early recognition and prompt treatment of conditions arising from the occupation. The industrial physician applied to preventive medicine the vital statistics of the industrial worker.

Deviations from the normal would become readily recognized as the physical status of the community and the types of disorders to be found in different occupations were better understood.

He pointed out that there were at present in Melbourne and Sydney a number of practitioners who devoted all or part of their time to industry.

He summarized the position by stating that industrial hygiene, apart from its routine functions which were both preventive and remedial, offered a substantial increase in knowledge of the physical status of the community and of the incidence and etiology of disease and thus formed an intelligent basis for further disease prevention.

DR. FRANK L. KERR (Melbourne) read a paper on morbidity figures in certain public service occupations. He stated that the collection of morbidity statistics was an important feature of modern public health work. There were three main sources from which they might derive information, the friendly societies and other sick benefit associations, the general hospitals and such industrial organizations as had adopted some form of medical service. The following data were necessary for accurate records: (i.) the total number of persons, (ii.) the number of ill persons, (iii.) the sex, age, occupation or department, (iv.) the disease and (v.) the days lost through sickness. Standardization was essential for purposes of comparison. It was most important in regard to age and diagnosis and in regard to the latter, the international list of the causes of death was the most suitable classification. The health records were studied for 1914 and 1920 to 1922 of Victorian State school teachers. There had been approximately two thousand males and three thousand females in 1914 and two thousand males and four thousand females

in 1922. The average working days lost per year had amounted to 7.62, being 5 for males and 9.09 for females. The age period of greatest sickness among males was twenty-one to fifty years and among females forty-one to fifty-five years. The principal disease groups had been the epidemic and infective diseases and diseases of the nervous system. The chief diseases had been influenza and neurasthenia. He compared these records with those of the public elementary school teachers in London for 1904 to 1919. In this service the males had lost 4.06 days and the females 8.02 days, the chief causes of sickness being the catarrhal conditions of throat and chest.

The results of an inquiry by Sturgis among two thousand working women in Pennsylvania had showed that menstruation had little effect on capacity for work, 65% being able to work without discomfort, while 30% required a short rest only. Amongst Victorian teachers approximately 80% did not suffer any loss of efficiency from this cause.

Among taxation and postal department officers he had found that the average time lost had been ten days per year, in comparison with the Victorian Railways where the average loss had been 6.16 days. He pointed out that a loss of six days per year was equivalent to 2% incapacity of the whole industrial population of Australia.

DR. CARLTON A. ELLIS (Melbourne) gave a summary of the occupational details of a tramway man's life. His figures had been compiled from over three thousand examinations. Arrangements had been made to examine traffic men every three years and all other employees every six years. The employees had a benefit society which provided sick pay and medical attention. Examination showed that 75% to 88% of new recruits were flat-footed before entering. Of two thousand men examined only 30% had been regarded as in perfect physical condition. Among one thousand candidates for admission over half the rejections had been on account of defective vision and deformity.

DR. J. S. PURDY (Sydney) read a paper on sickness and accident in relation to employment. One of his duties was the examination of all new employees of the Sydney Municipal Council, the examination of employees on promotion or transfer and examination of absentees through sickness or accident as to their fitness to return to duty. He noted a definite seasonal variation in relation to sickness, influenza occurring mainly between July and August, while gastritis increased in the warmer months of the year. The claims for sickness had been found to be three times the number as those for accident and the time lost from sickness double that from accident. The figures showed a remarkable reduction in sickness and accident rates during the period when no work was carried out on Saturday. With regard to overtime he had found that there had been an unusual number of cases of neurasthenia and gastritis amongst men who had worked a considerable amount of overtime. He thought the capitalized value of a man of twenty-five had been estimated at £5,000 and advocated the establishment of orthopaedic clinics in each of the large centres as a means of reducing the period of incapacity.

DR. D. G. ROBERTSON (Melbourne) reported his observations in industrial medicine in Australia and other countries. He said that industrial medicine was an important part of the public health programme, its aim being the promotion of the health, comfort and welfare of the workers by the study of special methods for reducing the hazards of occupation. The adequate safeguarding of workers employed in dangerous and unhealthy trades was an important function of Government. Great Britain he instanced as an example of a country with efficient legislative and administrative control in this respect. There full advantage had been taken of the powers provided and consequently every dangerous trade had been controlled by regulation. In regard to notification, also, Great Britain showed a leading example. In Great Britain and Belgium medical inspectors had been appointed to supervise the general health of persons employed in factories and workshops. These medical inspectors not only investigated reported cases of industrial disease but conducted researches into the many health problems that

arise. In Australia today no medical man was attached to any of the Departments administering the labour laws and any medical advice required was obtained from the State health departments. Sufficient information was available to show that the industrial worker lost from eight to ten times as many days from sickness as from accident, but while the worker was covered by *Workmen's Compensation Acts* in regard to accidents, he was not necessarily insured against sickness. In the matter of *Workmen's Compensation Acts* in Australia the attention of governments might well be directed to the advisability of amending these acts to make provision for the payment by the insurer of all medical and hospital fees incurred by the injured worker. Another matter of importance was the desirability of governmental action in the establishment of orthopaedic clinics in the larger industrial centres where any person whose capacity for work was impaired, might attend. The modern employer should have human sympathy with the conditions of labour and with the men's point of view. America's leading industrialists were setting a brilliant example in this respect. Medical departments in some of the larger American works were the last word in efficiency. In Australia there was a suspicion on the part of organized labour as to the objects of industrial medical service. The health section of the International Labour Office was doing work of supreme importance to all interested in industrial medicine. The Industrial Hygiene Division of the Commonwealth Department of Health was acting as a liaison body with the health section of the international labour organization. In conclusion it might be said that the economic loss, resulting from the illness of wage earners, was enormous. Disabling illness was responsible for the loss of six days per worker per annum, a total loss of at least nine million working days per annum in Australia.

In the discussion that followed, Dr. J. F. BARTLEY (Broken Hill) stated that among men in Broken Hill who had been withdrawn from industry and compensated on account of fibrosis, many could have continued at some occupation for a considerable period. They should be encouraged to follow some other occupation. As it was, they did no work and the increased incidence of tuberculosis amongst them was due in part to the fact that they came in contact in a club room with the tuberculous persons. The fact that if their earnings together with compensation reached the basic wage, the latter was reduced, removed all incentive for them to improve their condition.

Dr. E. ROBERTSON (Melbourne) stated that notification of industrial diseases was provided for in the *Health Act* and that regulations would come into force in the following week. These had been compiled with the help of Dr. Lanza and he hoped they would serve as a model for other States.

#### Colour Testing.

Dr. G. H. TAYLOR (Sydney) read a paper on colour testing and the psychology of colour. His paper was based on his experience as Medical Officer in the New South Wales Railway Department during the course of sixteen years. In 1886 coloured wools had been used and two years later coloured cards with dots had been substituted and employed both for colour vision and for form vision. In 1902 coloured glasses had been introduced and in 1904 Holmgren's wools and Williams's test lantern had been adopted. The former had subsequently been discarded, but the latter was still used. Dr. Taylor stated that if Williams's lantern were used alone, a person with defective colour vision might pass the examination. In 1915 Stilling's plates had been used together with a modified Williams's lantern, while in 1922 Edridge Green's lantern had been added. Dr. Taylor was satisfied that a person who could pass the test with Williams's modified lantern in which the colours were restricted to red, green and white and who made no mistakes with the first eight of Stilling's plates, might be employed in the railway service with safety, even though he might have an undetected defect.

A colour blind person had a different expression to a colour efficient person during the examination. The former

adopted a listening expression, while the latter adopted a watching expression. The colour blind person had inflection of his voice without warmth, while the tone deaf person manifested no degree of inflection of tone, even if he had a quality of modulation. There was an obvious psychological analogy between colour blindness and tone deafness. Dr. Taylor had not encountered a man who was both colour blind and tone deaf, but he had seen a woman and a child with both defects. Stammering was more common among colour efficient persons than among the colour blind. The nervous quaver in the voice associated with excitement, was almost peculiar to the colour efficient.

#### Malaria.

Dr. R. W. CLENTON (Townsville) gave a review of malaria in Australia. He stated that Cleland had dealt with all accessible references up to 1912. Mapleston's article in 1923, however, had already been obsolete when published, owing to new information obtained by a malaria survey carried out in conjunction with the Australia Hookworm Campaign. He stated that there were several endemic centres.

In North Queensland the endemic area included the coastal district from Ingham and Cardwell 19° south to Batavia gold diggings at the extreme north of Cape York Peninsula, through the peninsula itself and along the whole eastern and south-eastern coasts of the Gulf of Carpentaria. In the Northern Territory three main foci extended from Avon Downs to Roper River in the east and Victoria Downs in the west at the coastal junction of the boundaries of the Northern Territory and Western Australia. The examination showed the probability of malaria occurring sporadically in Riverine districts of rivers Fitzroy and Ord. The trunk railway from Port Darwin, towards Daly Waters was marked along its whole course by occurrence of sporadic cases. The contemplated extension of the railway might cause an epidemic from the concentration of a non-immune population in an area where the carriers and anopheline vectors were not uncommon.

Malaria frequently occurred along the western side of Cape York Peninsula at the mission stations of Mapoon, Weipa and Aurukun. The carrier was probably *Anopheles annulipes* or *Anopheles bancrofti*. The former was the only common mosquito in the regions where malaria was prevalent and in some localities, for example on the Roper River, it existed in enormous quantities and was the sole species found. *Anopheles bancrofti* did not occur south of Brisbane, as far as was known, nor was it found in those localities where sporadic cases of malaria had been reported in New South Wales, Victoria and southern parts of Western Australia.

SURGEON-LIEUTENANT T. A. KIDSTON (Royal Australian Navy) submitted a paper which was read by Dr. McCALLUM on prophylaxis of malaria as applicable to the naval service in time of war. He stated that measures should be taken in regard to the ship itself when anchoring offshore with provision of a guard to report any signs of mosquitoes. Strict attention was required also to supervise native boats coming alongside and ships' boats. If it were necessary to anchor inshore, the ship should be made as mosquito-proof as possible by the use of wooden or metal frames and cotton net of close mesh. Under these conditions daily inspection was required to insure that all necessary repairs or readjustments were carried out. Mosquito harborage on the ship must be obliterated, while malarial patients should be isolated in mosquito-proof quarters between sunset and sunrise.

In protecting landing parties, quinine was valuable, along with the free use of pungent oils. Tents should be protected with netting and in the case of prolonged landing operations careful attention should be given to the choosing of a camp site, spraying, clearing and draining operations should be undertaken and of these spraying was the most useful immediate precaution. The oil used was a mixture of pure oil and a low grade paraffin. For spreading on rice fields sawdust should be impregnated with oil. The organization of working parties required careful attention and team work often gave the best results in the shortest time.

A review of the Rabaul parasites in Australia was given by Dr. N. B. CHARLTON (Sydney). He showed the infrequency of such infestation as far as present information went. Hookworm, as shown in Dr. Sweet's paper, was definitely endemic in certain areas. *Enterobius vermicularis* was particularly common in children, but had no pathological significance. Other varieties of helminths had probably been brought by persons arriving from endemic centres, but had not caused disease in Australia. Of protozoological parasites the only one of importance yet discovered in Australia was *Entamoeba histolytica*. Shearman's investigations in Western Australia pointed to an endemic infection there. Dr. Charlton considered that the freedom from outbreak in Australia was due to lack of suitable environment.

#### Hookworm Disease.

Dr. W. C. SWEET (Melbourne) gave an account of the Australian Hookworm Campaign which had been instituted by Dr. Waite in 1917 in Papua. Later the State of Queensland had collaborated with the Commonwealth Government and the International Health Board. After having indicated the extent of the work and the plan of attacking the problem, he dealt with the results. Hookworm disease had been discovered in a narrow coastal area between the Tweed River and the Myall Lakes, north of Newcastle in New South Wales; it was endemic along the coast from Cooktown to the Tweed River, spreading inland about sixty miles. In Western Australia the affected area was limited to the district around Beagle Bay, while in the Northern Territory there was an endemic area around Darwin, Melville, Bathurst and Goulburn Islands and from Cape Arnhem to Anson Bay. Among about 250,000 persons examined, 19.4% had been found to be infected. In Papua 59% of the natives and in New Guinea 79% of the natives examined had been found to be infected. Hookworm disease was usually endemic where the rainfall was one hundred and fourteen centimetres (forty-five inches), but this had to be modified by the recognition of other climatic conditions, such as warmth. No endemic hookworm disease had been found south of 32° south latitude. Dr. Sweet concluded by giving an account of the methods of permanent control.

#### Unclassified Fevers in Northern Australia.

Dr. F. P. WHEATLAND (Melbourne) described some unclassified fevers met with in the northern coastal regions of Queensland. Mossman fever was a specific fever, which had first been described by Smithson in 1910. It had a course of about twenty-one days, characterized by pains in the head, back and legs, painless enlargement of certain groups of lymphatic glands and a macular or vesicular rash. It was non-infectious. The incubation period was about six days. Sarina or west Plant Creek fever was a continuous fever of somewhat shorter duration than enteric fever. It was associated with a mortality of between 20% and 30%. Anti-typhoid inoculation conferred some protection. Dr. Wheatland held that both diseases were transmitted by insects.

#### Filariasis.

Dr. R. W. CILENTO and Dr. R. E. RICHARDS read a paper on filariasis in Australia. After having sketched the history of this disease in Queensland, they gave an account of the method of collecting information by means of a questionnaire to medical practitioners in the affected areas. It had been determined that Brisbane and Ipswich were heavily infected. Some filariasis existed in Rockhampton, Mackay, Proserpine, Bowen, Ayr, Townsville, Ingham, Cairns, Port Douglas to Cape York and Normanston. The disease had not been discovered west of the coastal range. It had been found in parts of the Northern Territory. The parasite was *Filaria bancrofti* and its vector was *Culex fatigans*. The parasite was found less frequently during the winter.

#### Health Administration in Country Districts.

COLONEL F. F. LONGLEY (Melbourne) read a paper on some defects in country health administration. Australia was commonly regarded as one of the healthiest parts

of the globe. On the basis of health statistics, this view must be accepted. But if the enteric fever incidence were taken as an indicator of the sufficiency of the sanitary measures in the community, Australia's position was not good and in certain parts was very bad. He compared the death rates from enteric fever of the six Australian States with those of sixteen other countries and found that Victoria occupied the sixth place on the list of twenty-two, South Australia the eighth, Tasmania the tenth, New South Wales the thirteenth, Western Australia the fifteenth and Queensland the eighteenth. The enteric fever mortality and morbidity in many country districts were many times greater than the average figure for the State. He considered this high endemic enteric fever incidence as deplorable. In the urban districts the conditions could be and actually were being improved. The cause appeared to be the apathy of the individual. He considered that medical officers of health thoroughly trained in the special kind of work were needed to grapple with this matter. Better results could be obtained by making use of the principle of cooperation among neighbouring communities, so that a large population could be served by a single organization. A joint health office for these collaborating communities would be required, staffed with a full-time medical officer specially trained for the work. Each State could be divided into health districts of such dimensions that the officers connected with the administration could travel by car to all parts and return on the same day in time to carry out all work in hand.

#### The Sciences Underlying Public Health.

Dr. W. A. SAWYER (Melbourne) dealt with the variety and range of knowledge essential to the profession of public health. He voiced the necessity for specialization of workers, but emphasized the need on the part of the health officer and administrator for intensive training in general public health sciences. The full-time health officer with special training was needed to advance the public health. Only with effective permanent local health services could the efforts of the Commonwealth and States reach full accomplishment. It was equally important that the head of each governmental organization should have a scientific training and outlook. He should be a sanitary statesman. The practice of public health could be essentially scientific. For example the epidemiologist reached his results through field studies supported by laboratory investigation and analysed with the help of modern statistical science. There was need, however, for other than medical scientists in dealing with public health problems. If some important public health specialists had drifted away from the health departments or had not been in them, the time had arrived to bring them in. He remarked that sanitary engineering and statistical work had not developed in Australia to the same degree as the medical and laboratory work. He considered that the knowledge already available was not being fully applied to public health problems and that there were not enough trained investigators and public health laboratories for the prompt detection and control of disease carriers.

Mr. SYME read a letter which he had received from the Secretary of the Victorian Health Commission, complaining that in his Presidential Address he had misrepresented the action of the Commission. In reply to this communication he stated that with regard to the Commission's inability to undertake a campaign against diphtheria at Colac, he had stated in his speech exactly what had appeared in the daily press. As this had not been contradicted by the Commission, he had assumed that the report was accurate. In regard to the campaign at Bendigo, he had read in the official journal *Health* that such a campaign had been undertaken by the Commonwealth Department of Health and in the absence of any contradiction by the Commission, he had accepted the statement as correct. If he had in any way misrepresented the attitude of the Commission, he regretted it and apologized.

A summary of the proceedings of the remaining seven Sections will be published in the issues of December 15 and 22, 1923.

## TRANSACTIONS OF CONGRESS.

The Executive Committee of Congress have decided to publish the Transactions of the First Session of the Australasian Medical Congress (British Medical Association) in a series of weekly supplements to THE MEDICAL JOURNAL OF AUSTRALIA, starting early in January, 1924. This arrangement will enable every member of the British Medical Association in Australia as well as subscribers to the journal to receive the Transactions in serial form. Those who would wish to avoid the necessity of collecting the supplements, can secure the whole collected and bound at a low cost in addition to the loose parts. Orders for the complete Transactions bound either in cloth or half-leather covers must be sent to the Manager of the journal before December 29, 1923, so that extra copies of each supplement may be printed. The price will be announced at an early date.

## Proceedings of the Australian Medical Boards.

### VICTORIA.

THE following have been registered, under the provisions of the *Medical Act, 1915*, as duly qualified medical practitioners:

IRELAND, MARIAN ISABEL LINDSAY, M.B., B.S., 1923 (Univ. Melbourne), 397A, Dandenong Road, Armadale.

LE SOUËF, LESLIE ERNEST, M.B., B.S., 1922 (Univ. Melbourne), Zoological Gardens, South Perth, Western Australia.

### Names of Practitioners Removed from the Register, under Section 9 of the Medical Act, for Failure to Notify Change of Address.

ANDERSON, THOMAS LYNEWOLDE.  
BENSON, HENRY PORTER D'ARCY.  
BULMER, THOMAS SANDERSON.  
CLARK, WENDELL INGLIS.  
COANE, JAMES.  
COWAN, ETHEL MARY VAUGHAN.  
DALY, CHARLES ANDREW.  
GAFFNEY, AYLMER EDWARD BURKE.  
GRAHAM, CHARLES HUNTER.  
GURDON, EDWIN JOHN.  
HALLOCK, FRANK MEAD.  
HAYWARD, ARTHUR ERNEST.  
HOLMES, LOUIS SAENGER.  
HURST, JOHN DANIEL.  
JOHNSTONE, WILLIAM HENRY.  
KERR, GEORGE LAWSON.  
LEWIS, ERIC HENRY.  
LOW, WILLIAM HOUSTON.  
MARTIN, ALBERT EDWARD.

## Public Health.

### THE HEALTH OF AUSTRALIA.

#### INFECTIVE DISEASES NOTIFIED IN AUSTRALIA DURING THE YEAR ENDED DECEMBER 31, 1922.

Infective Diseases.	N. S. Wales.		Victoria.		Queensland.		Sth. Australia.		West Australia.		Tasmania.		Commonwealth	
	Cases.	Deaths	Cases.	Deaths	Cases.	Deaths	Cases.	Deaths	Cases.	Deaths	Cases.	Deaths	Cases. <sup>1</sup>	Deaths
Enteric Fever .. ..	723	97	288	30	375	40	142	19	260	26	138	15	1,926	227
Scarlet Fever .. ..	1,162	10	1,893	14	213	3	1,430	3	108	1	981	7	5,787	38
Diphtheria .. ..	4,139	194	5,013	133	1,274	59	1,526	61	614	19	1,616	56	14,182	522
Pulm'n'ry Tuberculosis	1,117 <sup>2</sup>	1,051	1,098	911	450	304	492	322	388	251	170	103	—	2,954 <sup>3</sup>
C'bro-Spin'l Meningitis	22	23	13	11	22	16	6	3	0	2	6	2	69	57
Poliomyelitis .. ..	31	11	22	8	11	6	47	15	0	1	3	1	114	42
Malaria .. ..	—	—	5	2	17	6	2	—	40	7	0	0	—	21 <sup>4</sup>
Puerperal Fever .. ..	—	—	61	2	28	3	16	2	4	1	16	1	—	9
Septicæmia, Sapræmia, Pyæmia .. ..	—	53	0	40	—	11	—	11	15	1	—	4	—	120
Bilharziosis .. ..	—	—	0	0	1	0	0	0	1	0	0	0	—	—
Morbilli .. ..	—	11	—	2	—	9	555	4	—	2	—	—	—	28
Pertussis .. ..	—	79	—	44	—	40	54	2	—	11	—	6	—	182
Ophthalm. Neonatorum	—	—	0	0	—	—	—	—	45	0	5	0	—	—
Anchylostomiasis ..	—	—	0	0	107	7	—	—	—	1	—	—	—	8
Beri-Beri .. ..	—	1	—	—	—	7	—	—	33	15	—	—	—	24 <sup>5</sup>
Low or C'ntinu'd Fever	—	—	0	0	0	0	—	—	1	0	—	—	—	—
Pneumonia .. ..	—	—	—	—	—	—	—	—	50	0	—	—	—	—
Influenza .. ..	—	—	—	—	9	0	36	0	1	0	—	—	—	—
Dengue Fever .. ..	—	—	—	—	—	—	—	—	16	—	—	—	—	—
Encephalitis 'Letharg'a	—	—	18	0	—	—	—	—	—	—	—	—	—	—
Erysipelas .. ..	—	—	—	124	0	108	0	41	0	0	—	—	—	—
Dysentery .. ..	—	—	2	0	0	0	—	—	10	0	—	—	—	—
Cholera .. ..	—	—	0	0	0	0	0	0	0	0	0	0	—	—
Hæmaturia .. ..	—	—	0	0	0	0	—	—	0	0	0	0	—	—
Small-pox .. ..	0	0	0	0	0	2	0	0	0	0	0	0	0	2
Plague .. ..	33	9	0	0	13	6	0	0	0	0	0	0	46	15
Anthrax .. ..	—	—	1	0	—	—	—	—	0	0	—	—	—	—
Tetanus .. ..	—	—	5	—	—	—	—	—	—	—	—	—	—	—
Varicella .. ..	—	—	1	—	—	2	448	—	—	—	—	—	—	—
Granuloma .. ..	—	—	—	—	—	—	—	—	1	—	—	—	—	—

<sup>1</sup> The total number of cases is not given of those diseases which are not notifiable in all the States.

<sup>2</sup> Notifiable only in portion of the State.

<sup>3</sup> Includes twelve deaths in the Northern Territory.

<sup>4</sup> Includes six deaths in the Northern Territory.

<sup>5</sup> Includes one death in the Northern Territory.

MERRIN, PATRICK.  
 MACDONALD, GEORGE BOTHWELL DOUGLAS.  
 MCKAY, JOHN GILBERT.  
 MACKENZIE, ANDREW HARDIE.  
 MACMILLAN, JOHN GEORGE.  
 McMILLAN, NEIL.  
 PHIPPEN, HARRY GARNET.  
 PITCHER, SAMUEL WALTER.  
 REID, JOHN.  
 RHODES, ARTHUR.  
 ROBINSON, EDMUND.  
 RYAN, RAYMOND WILLIAM.  
 SCOTT, ERIC NORHAM.  
 SECCOMBE, SAMUEL HUBERT.  
 SHAW, ALFRED ELAND.  
 STEEL, DONALD.  
 STEWART, CHARLES ALFRED.  
 STRANGMAN, THOMAS HANDCOCK.  
 TALBOT, JOHN RICHARD.  
 THOMSON, GEORGE.  
 VOLCKMAN, RONALD.  
 WARREN, THOMAS.  
 WATERS, CLARENCE HENRY.  
 YOUNG, DAVID HASTINGS.

#### Name of Practitioner Changed.

HAGENAUER, HENRY ALEXANDER to HAGEN, HENRY ALEXANDER.

#### Name of Deceased Practitioner Removed from the Register.

MACKAY, GEORGE ERIC.

### Books Received.

- A MANUAL OF SURGICAL HANDICRAFT AND PHYSIO-THERAPY (For the Use of Medical Students), by J. Renfrew White, M.S. (N.Z.), F.R.C.S. (Eng.); 1923. Durnedin, New Zealand: Coulls Somerville Wilkie, Limited; Demy 8vo., pp. 566, with index and 343 illustrations.
- EAR, NOSE AND THROAT NURSING, by Jas. Hardie Neil, D.S.O., C. de G., M.B. (N.Z.), M.R.C.S. (Eng.); 1923. Auckland, New Zealand: Clark and Matheson, Limited; Sydney: Angus and Robertson, Limited; Demy 4to., limp cover, pp. 31, with illustrations. Price: 7s. 6d. net.
- HANDBOOK OF ANÆSTHETICS, by J. Stuart Ross, M.B., Ch.B., F.R.C.S.E.; Second Edition: 1923. Edinburgh: E. and S. Livingstone; Crown 8vo., pp. 344, with 71 illustrations. Price: 8s. net.
- OBSTETRICS FOR NURSES, by Charles B. Reed, M.D.; 1923. St. Louis: C. V. Mosby Company; Post 8vo., pp. 400, with 144 illustrations, including two coloured plates. Price: \$3.50.
- OFFICIAL HISTORY OF AUSTRALIA IN THE WAR OF 1914-1918: VOLUME XII. PHOTOGRAPHIC RECORD OF THE WAR—REPRODUCTIONS OF PICTURES TAKEN BY THE AUSTRALIAN OFFICIAL PHOTOGRAPHERS. Annotated by C. E. W. Bean and H. S. Gullett; 1923. Sydney: Angus and Robertson, Limited; Demy 8vo., with 753 illustrations and index. Price: 21s. net.
- THE PRIMARY PROBLEMS OF MEDICAL PSYCHOLOGY: A TEXTBOOK FOR STUDENTS AND PRACTITIONERS, by Dr. Ch. de Montet, Lausanne, Translated by A. Newbold; 1923. London: John Bale, Sons and Danielsson, Limited; Crown 8vo., pp. 152. Price: 7s. 6d. net.
- TRANSACTIONS OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA: Third Series; Volume Forty-Four; 1922. Philadelphia: Printed for the College; Demy 8vo., pp. 647, with illustrations.

### Medical Appointments.

DR. DAVID DUNCAN and DR. ALBERT CURTIS (B.M.A.) have been appointed Acting Medical Superintendents at the Hospitals for the Insane at Mont Park and Ballarat, respectively, in Victoria.

The undermentioned have been appointed Public Vaccinators in Victoria: DR. G. D. BROOME (B.M.A.) at Cowes, DR. S. CRAWCOUR (B.M.A.) at Northcote, DR. D. H. YOUNG at Rupanyup, DR. H. N. ZIMMER at Red Cliffs.

DR. H. M. ANDERSON (B.M.A.) has been gazetted an Appointed Member of the Licensing Court for the Licensing District of Cootamundra, New South Wales.

### Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney	Australian Natives' Association Ashfield and District Friendly Societies' Dispensary Balmalm United Friendly Society's Dispensary Friendly Society Lodges at Casino Leichhardt and Petersham Dispensary Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney Marrickville United Friendly Societies' Dispensary North Sydney United Friendly Societies People's Prudential Benefit Society Phoenix Mutual Provident Society
VICTORIA: Honorary Secretary, Medical Society Hall, East Melbourne	All Institutes or Medical Dispensaries Australian Prudential Association Proprietary, Limited Mutual National Provident Club National Provident Association
QUEENSLAND: Honorary Secretary, B. M. A. Building, Adelaide Street, Brisbane	Brisbane United Friendly Society Institute Stannary Hills Hospital
SOUTH AUSTRALIA: Honorary Secretary, 12, North Terrace, Adelaide	Contract Practice Appointments at Renmark Contract Practice Appointments in South Australia
WESTERN AUSTRALIA: Honorary Secretary, Saint George's Terrace, Perth	All Contract Practice Appointments in Western Australia
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington	Friendly Society Lodges, Wellington, New Zealand

### Diary for the Month.

- DEC. 11.—New South Wales Branch, B.M.A.: Executive and Finance Committee.  
 DEC. 12.—Western Australian Branch, B.M.A.: Council.  
 DEC. 12.—Melbourne Paediatric Society.  
 DEC. 14.—New South Wales Branch, B.M.A.: Branch.  
 DEC. 14.—Queensland Branch, B.M.A.: Annual Meeting.  
 DEC. 14.—South Australian Branch, B.M.A.: Council.  
 DEC. 18.—New South Wales Branch, B.M.A.: Medical Politics Committee; Organization and Science Committee.  
 DEC. 19.—Victorian Branch, B.M.A.: Council.  
 DEC. 20.—City Medical Association: New South Wales.  
 DEC. 27.—South Australian Branch, B.M.A.: Branch.  
 DEC. 27.—Brisbane Hospital for Sick Children: Clinical Meeting.  
 DEC. 28.—Queensland Branch, B.M.A.: Council.

### Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, B.M.A. Building, 30-34, Elizabeth Street, Sydney. (Telephone: B. 4635.)

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